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ABSTRACT

This guide is intended to assist countries contemplating a comprehensive, action-oriented review of health labor force development to improve their national health systems. Various aspects of the health system infrastructure are examined (major components, organizational structure, coordinating mechanisms, sources of information, and interrelationships between health systems and labor force development). The chapter on health labor force planning examines national policies, mechanisms for assessing the current health labor force situation and planning improvements, planning methods, health labor force research, and information flows. The next chapter covers the general educational system; schools for training health personnel; and training for the various health occupations (including physicians, pharmacists, dentists and dental personnel, nurses and midwives, community health workers, diagnostic technicians and assistants, environmental health personnel, and health leaders and administrators). Authorization to practice, work conditions, personnel functions and administration, and various public and private sector health care providers are examined in a chapter on managing the health labor force. The final chapter outlines trends and makes recommendations concerning planning, production, management, international collaboration, and plans of action. Appendixes or annexes describe health labor force development in the Islamic Republic of Iran, New Zealand, the Republic of Rwanda, and the Socialist Republic of Viet Nam. (MN)

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Reviewing health manpower development

A method of improving national health systems

Tamas Fülöp
Milton I. Roemer

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Public Health Papers
No. 83

Reviewing health manpower development

A method of improving national health systems

This publication contains a suggested outline for an *action-oriented* survey of a national health manpower system. It has been field-tested in twelve countries and is reasonably complete. It is meant to be properly *adapted* to each country's conditions and constraints. If only a partial review can be undertaken, the authors foresee that it may only be possible to follow the proposals in certain parts of the book.

Reviewing health manpower development

A method of improving national health systems

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Preface

This publication aims to serve as a general guide to countries contemplating a comprehensive, action-oriented review of health manpower development in order to improve their national health systems. If corrective actions are to be taken, a review of the current situation is first necessary. The health manpower development process (planning, production, and management of health manpower) is closely related to all aspects of a health system, and this process can best be understood and assessed against a background of the overall health system infrastructure. A comprehensive review of all aspects of the health manpower development process in a country should be closely related and complementary to other national reviews of primary health care, health-for-all strategies, and other similar reviews of policies and programmes.

Thorough understanding of a country's entire health manpower development process is crucial if improvements are to be made in the staffing of all programmes delivering health services—primary, secondary or tertiary. At the same time, manpower analyses can provide clues to many other features of national health systems that call for study and subsequent improvement.

The scope of health manpower development is very broad. A study of the health manpower development process, for each category of health worker, and in every part of the health system infrastructure (public and private), would be a very large and complex task. For this reason, any review of a country's health manpower development warrants the establishment of a national team of knowledgeable representatives of the major categories of health manpower and also of the major organizations within the health system, particularly the ministry of health, as well as the planners and trainers of health personnel. Outside experts in health manpower development may sometimes be helpful.

Ideally, the task of collecting the required information should be assigned to the members of the team, but in the final presentation of the country review all team members should read and approve all the materials. Some sections, such as the general commentaries at the end of Chapters 4, 5, and 6, will require group discussion. An effort has been made throughout this publication to emphasize the most significant aspects of the health manpower development process. There are

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doubtless many details of health manpower planning, production, and management that have been omitted or touched upon only briefly. At the end of each main section, suggested sources of information are listed to help the review team in its work. These are only general suggestions, and the best sources of information will undoubtedly vary from country to country.

The Annexes contain brief accounts of health manpower development studies in four countries, carried out by a small team of country officials in collaboration with WHO staff; in each case the team included one of the authors (T.F.), who then wrote the report. The reports are much less comprehensive than the review outlined in this document, each being prepared in only one or two weeks. They are included only to illustrate the range of information that can be used to carry out this type of investigation, the way this information is assessed and analysed, and some of the conclusions that have been drawn from a review of this kind. The reports also emphasize possible corrective actions. They could be considered as the results of tests on the methodology described in this publication.

The initiative for undertaking a review of a country's health manpower development may come from many sources, such as the ministry of health, the national planning agency, the office of the prime minister or president, or perhaps a university, a federation of medical schools, or a national health council. In some countries, a committee of the national legislative assembly, parliament, or congress, might take the first step. Whatever the starting point, the team responsible for the review should represent the major disciplines and organizations concerned, without being too large to carry out the work effectively.

A comprehensive country review of health manpower development should substantially assist the efforts of any country aiming to achieve health for all through primary health care. It should serve as a tool for countries to use in planning for, training and deploying the number and types of personnel they require and can afford, and to ensure that such personnel possess the appropriate competence, so that national health systems based on primary health care for the attainment of health for all by the year 2000 can be developed.[1]

The review of health manpower development outlined in this publication may appear more comprehensive and detailed than necessary. However, its scope has been determined by the very large scale of the health manpower development process in virtually all countries. Nevertheless, *if a country cannot undertake a review of this scope, it should nevertheless attempt to undertake a more modest or limited one.* For example, analysis of certain agencies within the national health system might be restricted, and certain categories of health manpower only briefly covered.

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[1] WHO. *Seventh General Programme of Work covering the period 1984–1989.* Geneva, World Health Organization, 1982 ("Health for All" Series, No. 8), p. 66.

Health leaders in each country are in the best position to *select* those aspects of health manpower development that call for priority attention; other aspects might then be considered only briefly or not at all. Whatever the extent and scope of the review that is feasible, it should be action-oriented and conclude by defining the problems and putting forward *proposals for solving them.* Realistic recommendations for action are most important, for they are the purpose of the whole review process. Although the preparation of a "streamlined" version of this entire review was contemplated at one time, it was decided that the appropriate selection of certain subjects for investigation, while others are omitted, must be made by each country.

Finally, we should like to invite any colleagues who set out to undertake a review of health manpower development along the lines recommended in this publication, to let us know about their experiences. We should be grateful for candid reactions; any suggested improvements in the review procedure will be especially appreciated.[1]

We should also like to express our sincere thanks and gratitude to all those very numerous colleagues who contributed to the birth of this methodology by giving their comments, proposals and/or by participating in the field-testing. We truly regret that we cannot list them all here by name.

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[1] Please send your comments to: World Health Organization, 1211 Geneva 27, Switzerland.

1. Introduction

The achievement of the goal of health for all through primary health care requires the effective and coordinated services of many types of health personnel, within national health systems designed to respond to health needs. Thus the objective of a comprehensive, action-oriented review of health manpower development in a country is to acquire information on all relevant aspects of the health manpower development process—planning, production and management—against the background of the overall national health system, in order to make recommendations for improving that process. This information is required because—as discussed below—the proper functioning of the infrastructure of national health systems depends, in large part, on the effectiveness of the health manpower development process.

By providing information on the operation of the entire health manpower development process, a comprehensive country review should reveal both what health manpower planning, production, and management has achieved and where it has failed. More specifically, the terms of reference of a country review should be to describe and analyse:

(*a*) the health manpower development *policies* of the country, in relation to overall national health policies;
(*b*) the health manpower *plans*, in relation to the health manpower development policies;
(*c*) the *educational* policies, plans, and practices of schools and training programmes for health personnel in relation to both health manpower development policies and to national health policies;
(*d*) the *management* of all types of health personnel in different settings throughout the national health system;
(*e*) results, trends, and problems in the health manpower development process, and ways in which the country hopes to overcome its problems—especially alternative strategies that *can be recommended for solving high-priority problems*, and from which other countries might also learn; and
(*f*) how WHO and other interested *international and bilateral agencies* might best *collaborate* with the country to implement the recommendations and improve manpower development activities.

This publication outlines the kind of information needed on all phases of health manpower development and the national health system since a knowledge of the current situation is essential if sound recommendations on future requirements are to be made. It also suggests methods whereby the necessary information can be acquired. It does not, however, attempt to specify an "ideal" health manpower development process or policies. Neither standards for health manpower planning nor strategies for manpower production and management are put forward. These are matters to be decided by each country in the light of its own circumstances. The many questions posed, however, may by implication suggest that certain features of health manpower development policy have often proved to be valuable. For most of the questions, answers that are qualified or negative are likely to indicate the need for corrective actions; affirmative responses may, on the whole, define an effective health manpower development process.

The underlying inspiration for this publication is the goal of countries everywhere, namely, the attainment by all peoples of the world by the year 2000 of a level of health that will permit them to lead a socially and economically productive life. This goal was adopted by the World Health Assembly in 1977 and by the International Conference on Primary Health Care, Alma-Ata, USSR, in 1978. If this goal is to be reached, health personnel of the types and in the numbers required to meet the needs of health systems developed to serve the people must be available.

The Alma-Ata Conference called also for a new approach to health system development, namely, one based on primary health care. This means that health systems should be reoriented so that primary care is supported by secondary and tertiary care, rather than merely serving as a channel to such higher levels of care. The philosophy of primary health care also calls for an equitable distribution of health manpower and all other essential resources, a multisectoral approach to health development, and community participation.

It is in this spirit that the methods to be used in an action-oriented review of health manpower development in countries are presented in this publication. A thorough review and analysis of the health manpower development process in a country should contribute substantially to an understanding of how health personnel can be more effectively planned for, trained, and managed, to carry out national strategies aimed at achieving health for all.[1]

To review the entire health manpower development process in a country is not an easy task. Even if a streamlined or abbreviated review is undertaken, and it is action-oriented towards the improvement of the health system, the work must be done with great care. Basic background information should be assembled, including health trends, vital statistics, and the major features of the national health system infrastructure.

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[1] For a fuller discussion of such efforts and objectives, see: WHO Technical Report Series, No. 717, 1985 (*Health manpower requirements for the achievement of health for all by the year 2000 through primary health care*: Report of a WHO Expert Committee).

In every country there are constraints that must be overcome to reach the desired goal; but the improvement of a national health system is worth all the efforts that a country's health leadership can muster.

2. General background

To understand better the setting in which a national health system functions, certain basic information on the country is necessary. This may be classified under the following headings:

(1) *Geography*: size, location, climate and special problems, such as desertification or non-arable land.

(2) *Population*: the most recent figure available; age composition, with emphasis on important age-groups (e.g., under 15 and over 50 or 60 years of age); birth rate and rate of population growth per year; ethnic groups (only if these are significant); trends.

(3) *Economic level*: the gross national product (GNP) or gross domestic product (GDP) per capita; if available, the Gini coefficient,[1] showing the distribution of income among population groups; the main sources of wealth (agriculture, industry, mining, or other activities); major economic trends.

(4) *Urbanization*: definition of rural and urban areas, and percentage of the population in each; trends in urbanization.

(5) *Administrative units*: major political subdivisions—provinces, states, or regions—their number, average population, and range of populations; other units, such as districts or counties; number of cities, towns, and villages.

(6) *Literacy*: percentage of literate men and women; proportion of children of primary and secondary school and university age enrolled in schools; trends.

(7) *Major health indicators*: overall crude death rate and life expectancy at birth; infant mortality rate and death rate of children 1–4 years of age; maternal mortality rate; the ten major causes of death, if available; major causes of morbidity, if available from a household survey, records of hospitals, health centres, or other health care facilities and/or services; major endemic diseases or health problems; environmental health indicators; mortality and morbidity trends.

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[1] The Gini coefficient measures the degree of inequality of income distribution among families in a country. A lower coefficient indicates greater equality.

Sources of information

Data on most of the above-mentioned features of a country, except health, are ordinarily available in published form from a central office of statistics or a similar office. In the absence of such an office, a national office or ministry of planning should have this information. A last resort would be the office of the prime minister or president.

Information on health indicators can be obtained, if available, from the ministry of health. Within this ministry, the office or division of statistics, or its equivalent, should first be consulted.

3. The health system infrastructure

The health system infrastructure of a country may be described and analysed in many ways. Health manpower development is, of course, part of this system, and affects every aspect of its operation.

Major components

Every health system infrastructure has five major components, as illustrated in the model shown in Fig. 1. Each of the five components consists of a number of elements, including different parts of the health manpower development process, discussed below.

(1) *Resource production* includes health manpower, health care facilities, commodities (including drugs), and knowledge and technology. Institutions for training health manpower must be considered here, as well as bodies responsible for establishing health care facilities. Drugs

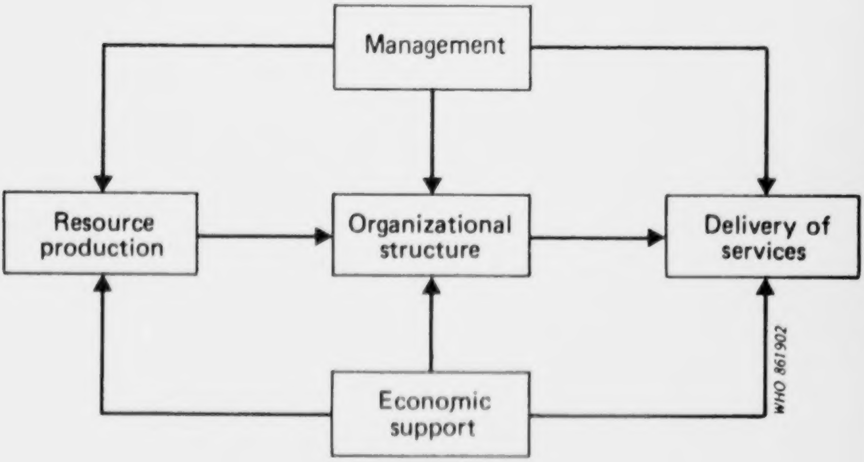

Fig. 1. Model of a health system infrastructure

are produced mainly by pharmaceutical enterprises, and knowledge is generated by research institutions.

(2) *Organizational structure* includes the ministry of health, other governmental agencies with health responsibilities (such as social security agencies or ministries of education), voluntary or non-governmental health agencies (e.g., the Red Cross or agencies concerned with particular diseases), trade unions, women's organizations, or other groups with health functions, private enterprises with health programmes, and the private health care sector (where it exists).

(3) *Management* includes health planning, health administration (including supervision, delegation of responsibility, coordination, information systems and mechanisms, etc.), regulation (medical licensure, drug control, etc.), and evaluation of health activities.

(4) *Economic support* includes sources of funds for health, such as public revenues, social insurance, charity, voluntary insurance, private commercial enterprises, and private individuals or families, together with the proportion of the national budget allocated to health and how the funds available are divided between tertiary, secondary, and primary care and/or hospital and ambulatory care, as well as health personnel.

(5) *Delivery of services* includes patterns of primary, secondary and tertiary care, and care for special population groups (e.g., military personnel, industrial workers) or disorders (e.g., mental disease, tuberculosis, leprosy); access to health care or population coverage is also important.

All five components have implications for health manpower development. Under "Resource production", the training of all types of health manpower is a major element. Under "Organizational structure", health manpower management is essential to the operation of all organized programmes as well as the private health care sector. Under "Management", health manpower planning is an integral part of health planning and the licensing of health personnel is also an aspect of regulation. "Economic support" is required for the training of health manpower, as well as for health manpower management. The deployment and utilization of health manpower in various settings is a major component of the "Delivery of services".

It is not necessary to analyse every component of a national health system infrastructure. It is important, however, to have a general idea of the organizational structure of the entire system, as all health systems utilize manpower in many programmes in addition to those of the ministry of health.

It is equally or even more important to determine whether there is a national health policy, and, if so, whether it is based on the goal of health for all through primary health care. Is there a national health strategy and plan, and, if so, is it based on this policy?

Organizational structure

This usually consists of a number of components, both inside and outside government as detailed below.

(1) *Ministry of health.* This is nearly always the most important body in the organizational structure of a health system, and its responsibilities and authority should be analysed in some detail. An organizational chart of the headquarters should be presented and also an analysis of the programme budget, if it is available. The peripheral organization under the ministry of health should also be explained, with the aid of an organizational chart showing the responsibilities at provincial or state levels, at lower district or area levels, and of local communities. The general character of the administrative relationships within the organization and structure of the ministry of health should be clarified. A ministry of health may sometimes contain a unit specifically responsible for the whole process of health manpower development; if so, this would warrant special attention.

(2) *Social security agencies.* These usually support health services, whether through direct control of personnel and facilities (as in most Latin American countries) or through the indirect pattern of contractual arrangements with private and independent health care providers, as in many developed countries of Western Europe and elsewhere. Social security agencies may play a large part in the utilization (and sometimes in the training) of health manpower.

(3) *Ministry of education.* This is responsible in many countries for medical schools and university faculties providing training for other health professions (pharmacy, dentistry, advanced types of nursing, etc.). University hospitals are sometimes used for teaching purposes. The ministry of education may also be responsible for health services to school children and for the health education of children and adolescents.

(4) *Ministry of agriculture.* In many countries, this ministry conducts community development programmes, which may include certain health services (environmental sanitation, nutrition education, preventive child health services, etc.). The control of animal diseases may also have important effects on human health.

(5) *Ministry of labour.* Factory inspections to check conditions affecting the health and safety of workers are often the responsibility of the ministry of labour or its equivalent. It may also be responsible for administering workers' compensation schemes for industrial injuries and occupational diseases; these often include special provisions for medical care. To all intents and purposes, the ministry of labour—insofar as it is concerned with the entire national workforce—could be considered as a partner, in both the overall planning of health manpower and in manpower management.

(6) *Ministry of defence.* Ordinarily, this ministry maintains special and well-developed health services for military personnel, and sometimes also for their dependants. In many countries, veterans with disorders connected with their period of active service are also eligible for health care from the military medical establishment.

(7) *Ministry of planning.* This or its equivalent (often in the form of a special office attached to the prime minister or president) may play a substantial role in overall national health planning, including health

manpower planning. The acquisition of information on health manpower from such an agency is discussed below. The review should define its place in the structure of government.

(8) *Ministry of finance.* In most countries a ministry of finance or an equivalent body is responsible for the allocation of funds to all branches of the government. It is important to explain how government financing is carried out. Sometimes, under certain circumstances, this ministry has the power to prevent the use of funds by the ministry of health, even when the expenditure of those funds has previously been authorized.

In some cases the ministry of finance is the channel through which foreign aid—multilateral, multibilateral or bilateral—is extended to a country. If the foreign projects involve health services, the money would ordinarily be allocated to the ministry of health. A project in health science education, however, might be carried out through the ministry of education or by the direct chanelling of aid to a university. In any event, the role of foreign aid in the health system must not be overlooked, even though it is normally mediated through an existing national agency.

(9) *Ministry of the interior.* This (or its equivalent) may have administrative and sometimes financial authority over city governments, and thus over numerous local health programmes, and especially those for environmental sanitation. Such local urban health facilities and services may or may not be linked to the ministry of health. The ministry of the interior may also operate special health programmes for aboriginal populations, and is nearly always responsible for the national police; the latter typically have their own special health services.

(10) *Parastatal agencies.* In many countries, certain large enterprises (e.g., railroads, public utilities, agricultural estates, mines, banks, etc.) are operated by autonomous corporations, often controlled indirectly by the government, but sometimes also owned in part by private interests. Special and well-developed health programmes often serve the employees of these enterprises and, in most cases, their dependants.

(11) *Civil service commission.* This or its equivalent may play a decisive role in many countries in selecting and promoting personnel, fixing salary scales, and other aspects of personnel policy and administration for all government employees, including health personnel.

(12) *Other government agencies.* In addition to the above, there may be other government agencies responsible for environmental sanitation, drug control, licensure of health professionals, or other functions related to health.

(13) *Voluntary health agencies.* Outside government, voluntary or non-governmental organizations have been established in most countries to provide or promote certain health activities. Well known almost everywhere are the Red Cross or Red Crescent societies, organized in scores of countries to help in emergencies (operating ambulances, providing human blood for transfusion, and first aid and food in natural disasters, etc.). Many of these agencies are concerned with a particular disease (tuberculosis, cancer, mental illness, etc.) and its prevention and treatment, research, or other activities. Many voluntary agencies provide

services to children or home nursing care for the chronically ill. In some countries, the work of voluntary health agencies is considered important enough to be subsidized by the government (usually through the ministry of health); this is true for health care facilities operated by many religious missions. Sometimes, governments may themselves encourage a voluntary health activity which, though important, is not considered appropriate for official sponsorship, such as family planning services. Still another type of voluntary health agency is represented by professional associations of physicians, nurses, dentists, or others, which may play a significant role in continuing education, among other activities. These associations may have a special impact on health manpower policies. In many countries, trade unions, women's organizations, or other groups with broad social objectives also carry out certain health functions. Trade unions, in particular, may sometimes play key administrative roles in government health programmes.

(14) *Private enterprises.* Large private enterprises in industry, agriculture, or commerce often provide comprehensive health services to their employees. In some countries, firms of a certain size are required by law to do so; smaller firms often have to provide minimal first-aid services. In isolated places (e.g., mines), the enterprise may operate its own hospital, with a full-time staff. Finally, the organizational structure of a health system must include those private enterprises whose central purpose is health-related; this would include pharmaceutical companies and health insurance organizations.

(15) *The private sector.* Private health services, outside the organized public health programmes and services, exist in many countries. While not organized in the usual sense, the private sector services are governed by supply, demand, price and, theoretically, competition. In many developing countries, and also in some highly developed ones, the private sector is very large, absorbing over half the total national health expenditure. The size and importance of the private sector are essentially inversely proportional to those of government health programmes. If the latter are well developed, then the market for private health services is bound to be small. If the public services are weak, the population inevitably seeks health care in the private sector, which increases in size. In many developing countries, traditional medicine also plays a significant role in the private sector (see Chapter 5).

Coordinating mechanisms

Because the organizational structure of a national health system is so complex, more and more countries are developing mechanisms (such as national health councils, health development networks, etc.) for coordinating the various bodies and sectors involved. Intersectoral coordination may also be promoted with sectors outside the health system, such as agriculture or industry, but having an important influence on health. Special attention should be paid to the functioning of such mechanisms, as they often only exist on paper. Since such coordination is especially important as a feature of national health manpower planning, it will be considered in the next chapter.

Sources of information

Most information on the organizational structure of a national health system can usually be collected through visits to various ministries in the national capital. The degree of detail required for this part of the country review of health manpower development does not necessarily require visits to the peripheral level of any of the government agencies mentioned above, except for the ministry of health; the information available from the headquarters of each ministry about the extent and scope of its health activities should be adequate. At later stages of the country review, when details about health manpower development are to be examined more closely, it will be necessary to gather data on activities at the peripheral level. The structure of the ministry of health will require study at each level, from the most peripheral to the most central and with special emphasis on the district level. At the peripheral level, particular attention should be paid to community health workers, traditional health practitioners and other health agents, their supervisors, as well as the first referral level hospitals.

A section of the ministry of finance, or its equivalent, usually collects data on the parastatal agencies. Further details may be sought later on health manpower development activities. The search for information on the various non-governmental agencies may be more difficult.

The principal offices of the major voluntary health agencies are usually located in the national capital, though this is not always the case. Religious missions in a country often have a central coordinating office for each church (Protestant, Catholic, or other) but, for various historical reasons, this may be located away from the capital. Health agencies concerned with specific diseases sometimes have no central headquarters, only numerous local activities conducted throughout a country; for these, information may be gathered by inquiring at the nearest available office. Some countries have a central coordinating body for all voluntary health agencies and programmes; this would be a valuable source of information.

As far as the health programmes of private enterprises are concerned, many countries have a national chamber of commerce or similar body that can provide rough estimates of the extent of such activities. Also, in a national ministry of labour or equivalent, the factory inspection unit can often furnish information on employee health-care programmes. To obtain information on health-related enterprises, such as pharmaceutical companies and health insurance organizations, it is probably best to consult knowledgeable officials in the ministry of health. The ministerial unit concerned with drugs and supplies will usually be able to furnish information on pharmaceutical companies operating in the country. Large insurance organizations may be located through the telephone directory in the national capital; if a senior officer of such a company is consulted, he will usually have information about the extent and characteristics of private health insurance throughout the country.

The private sector is probably the most difficult part of the health system's organizational structure to analyse. For this part of the review, however, only rough approximations are necessary. The number of physicians in private medical practice is generally available through the medical registration authorities (usually, but not always, within the ministry of health). It is sometimes possible simply to subtract the number of physicians known to be employed in the public service from the total registered, adjustments being made to allow for those who are out of the country. A certain percentage of physicians in government employment may also be engaged in part-time private practice. Similar data may be gathered about dentists, pharmacists, and other private health professionals. Other information about private practitioners is usually available from national professional associations, most of which have an office or at least an executive secretary in the national capital.

Information on the type and extent of traditional medicine practised in a country is usually difficult to obtain. Experienced public health officials, especially those who have worked in rural areas, may have some knowledge or impressions. If there is a department of anthropology or sociology at one of the universities, a local or even a nationwide study may have been made of traditional medicine and traditional birth attendance. Even a study of traditional practices in only one or two communities may provide a basis for rough national estimates. In many developing countries, the number of traditional health practitioners is usually far greater than that of physicians, although many of them may only work part time.

If a study of overall national health expenditures has been made in a country, its findings can be very useful in estimating the proportion spent on health care in the private sector. The World Bank has made such studies in numerous countries, and WHO has also conducted them. Reports on any such studies or surveys are usually available in the national office or ministry of planning, or the planning unit of the ministry of health. In the context of a country health manpower development review, studies of health expenditures are relevant, not from the economic point of view, but as a source of insight into the relative magnitude of different parts of the organizational structure of the national health system.

Interrelationships between health systems and manpower development

Before further aspects of health manpower development are explored, it may be helpful to consider a model of the entire process. In a streamlined form, encompassing all types of health manpower, this process may be illustrated as shown in Fig. 2. Health manpower

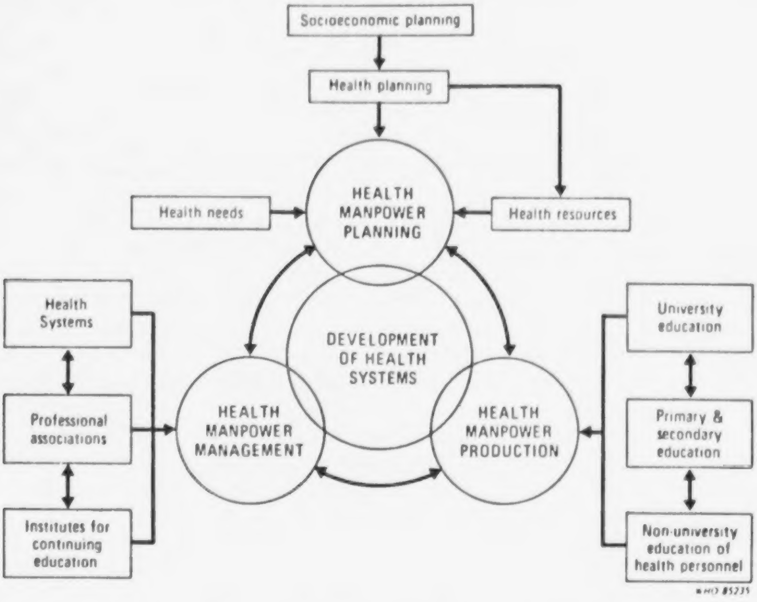
Socioeconomic planning
Health planning
Health needs
HEALTH MANPOWER PLANNING
Health resources
Health Systems
Professional associations
Institutes for continuing education
DEVELOPMENT OF HEALTH SYSTEMS
HEALTH MANPOWER MANAGEMENT
HEALTH MANPOWER PRODUCTION
University education
Primary & secondary education
Non-university education of health personnel
WHO 85235

Fig. 2. Interrelationships between health systems and manpower development and some of the national bodies involved

planning provides the basis for the production or training of health personnel in various schools or programmes, the graduates then being utilized and managed and the outcome of the entire process being the various health services. Experience in manpower management (utilization) provides feedback, on the basis of which production, planning and management can be appropriately adjusted. Planning, furthermore, may react on manpower training and management (utilization) if problems are identified.

4. Health manpower planning

Logically, the initial phase of the health manpower development process is health manpower planning. It is therefore necessary to determine whether such a process is carried out and, if so, through what mechanisms or agencies. Is there an explicit national health policy and does a health manpower policy form part of it? Are these embodied in any legislation? Essential to manpower planning is a knowledge of the types and numbers of all categories of health personnel in the country and their distribution. What methods are used to estimate future qualitative and quantitative requirements for each category of health personnel? Is any health manpower research carried out to guide policy decisions? What are the channels through which information on health manpower regularly flows? In this chapter, we shall discuss how each of these matters may be explored in an action-oriented review of a country's health manpower development.

National health manpower policies

In order to guide activities throughout the entire health manpower development process in a definite direction, it is of great value for the health leadership in a government to issue clear statements of national health policy—goals, priorities, main directions. The country review should determine whether such statements have been made and, if so, by whom, in what form, and under what circumstances. Do such health policy statements include explicit goals and main directions in the field of health manpower, including priorities? Have the costs of attaining manpower goals been estimated and are they within the economic capacity of the country? When were policy statements issued and, if this was some time ago, have they been reviewed and changed since then? If there has been a change of government, has the new leadership embraced the established policy or has this brought changes in health policy, explicitly or implicitly? Has the national health leadership endorsed the goal of health for all through primary health care? If so, do the policies on health manpower development appear consistent with, and do they promote, strategies for achieving that goal?

As a vehicle for formulating, promoting, and implementing health policy, many countries have established some type of interagency, multisectoral national health council or its equivalent. This body brings together the ministry of health and other agencies and organizations, both public and private, significantly involved in health development. It may also include representatives of national bodies, such as trade unions, farmers' organizations, women's organizations, and others. If such a coordinating council exists, has it issued reports that are relevant to national health policy in general, and health manpower policy, in particular?

In some countries, even those without a national health council, several academic, research, and service organizations have joined together to form national health development networks in order to coordinate efforts towards health for all and to strengthen each other's work in health promotion. Is there such a network in the country and, if so, has it contributed to the formulation of health manpower policy? Is there evidence of community participation or input from the community, either through this network or in some other way, in the formulation of health manpower policies?

Sources of information

Information on the above questions about health manpower policy can usually be obtained from the minister of health, the director-general of health, the chairman of the national health council, or other high-level officers in the ministry of health. It is also necessary to read published policy statements, if any exist, and other documents, such as those accompanying submissions of the national budget to a parliamentary body.

It must always be remembered, of course, that statements of policy may mean little more than political rhetoric, and may be a far cry from reality. On the other hand, the health manpower development process may implicitly reflect policies that have never been explicitly set out. If possible, such policies should be made explicit, since clear policies lend moral support to promoting efforts towards achieving specific objectives. To make such policies known can be important, especially in local settings, where some decision-makers may be unaware of national health policies.

Mechanisms for health manpower planning

Health manpower planning is usually a part of overall national health planning, which may be carried out as the specific task of a government agency concerned with comprehensive national socioeconomic planning. Such an agency is sometimes attached to the office of the prime minister, but it may sometimes occupy a position equivalent to that of a ministry. Because health manpower planning is so important, it may be given greater prominence than many other aspects of health planning. Manpower planning must be consistent with general health planning; for example, if a network of health centres is designed to cover the country, are there also appropriate plans to train the manpower needed to staff them?

Whether or not health manpower planning is conducted by a national planning agency, it may also be carried out at the same time within the ministry of health in one of two sections of the ministry—namely, in a health planning unit having manpower planning among its tasks, or in a section responsible for health manpower *training*, i.e., the training of certain types of personnel by the ministry of health itself. This section may also be responsible for planning to meet the future needs for the types of health manpower being trained by the ministry, and sometimes for all health manpower. Manpower planning may also be carried out by both of these sections of the ministry of health, each being responsible for different categories of manpower, so as to avoid duplication. The working relationships between the different agencies involved in health manpower planning should be clarified and coordination ensured.

In some countries, whether or not formal units for health manpower planning exist, *ad hoc* committees are sometimes set up to make recommendations on the subject, usually because the issue transcends the scope of any single agency. The initiative may be taken by the ministry of health or often by non-governmental professional associations, such as medical or nursing associations, especially if their members suspect that "too many" physicians or nurses are being produced for the country to support. In some countries, a special institute for research on health services or social medicine may include health manpower planning in its field of interest. In one country, the association of medical schools, in cooperation with the ministry of health, has supported health manpower research as a basis for policy decisions on planning. If such special *ad hoc* committees exist, their reports should be consulted.

Sources of information

To gather information on the various mechanisms for health manpower planning in a country, visits must be made to the ministry of health and its relevant sections. Here, preliminary information may also be available on the health planning functions performed by the agency responsible for overall national socioeconomic planning. A visit to this agency and discussions with its staff are essential. Likewise, any *ad hoc* committees established for manpower planning purposes should be identified and inquiries then made to determine what they are doing, and to what extent their activities are coordinated, if at all. Recent documents on health manpower planning should be collected.

Current health manpower situation

Fundamental to health manpower planning is a knowledge of the current manpower situation. The types and numbers of all health personnel currently in the country are the outcome of previous operations of the health manpower development process—at least in general terms. Such data can also be used as a starting point for future efforts. If corresponding information for earlier periods is available, trends can be determined, but the current situation is most important.

It will be necessary to assemble statistical data on the numbers of each major category of health personnel, and their population ratios (e.g., number of physicians per 100 000 population). A possible format for such a presentation is illustrated in Table 1. For certain categories of personnel it may not be possible to obtain recent information, and for others only estimates or approximations may be available. This can be indicated in the table by specifying the year to which the data apply and by giving a reference in the footnotes.

Table 1. Major types of health manpower: numbers and population ratios for the most recent year for which data are available

Type of health personnel	Year	Number	Rate per 100 000 population
Physicians			
Dentists			
Dental auxiliaries[a]			
Pharmacists			
Pharmacy assistants[b]			
Nurses (registered)			
Assistant nurses			
Midwives			
Assistant midwives			
Laboratory technicians			
Radiological technicians			
Physiotherapists			
Nutritionists and dieticians			
Sanitation personnel (senior)			
Sanitarians (junior)			
Health record clerks			
Community health workers[c]			
Others (specify)			

[a] Rough estimate of numbers of personnel giving direct assistance to the dentist at the chairside.
[b] Only personnel who have received formal training.
[c] Rough estimate of personnel trained for a short period, e.g., about 3-6 months, by the ministry of health.

As far as possible, further data should be assembled for each category of personnel in terms of the factors reflecting their deployment in the health system. Thus, Table 2 shows the way in which the total number of physicians in a country is distributed among the various provinces (or states or regions) into which it is divided. An equivalent table may be constructed for each of the other major types of personnel for whom data are available. In the majority of countries there are

Table 2. Number of physicians and population ratios in 19. . , by province

Province	Number	Rate per 100 000 population
A		
B		
C		
D		
E		
F		
G		
Total (all provinces)		

marked disparities in health manpower as between urban and rural areas, which these tables should clarify.

The work setting is another parameter that can be very useful in describing the health manpower situation. What proportion of the physicians or pharmacists, for example, are working for the ministry of health or other organized entities, compared with private practice? This is difficult to determine, but the task is somewhat easier if data are sought only on the principal work setting of the personnel concerned. A suggested format is given in Table 3, where "private enterprises" will include those in industry or agriculture or other sectors. "Voluntary agencies" will also include religious missions, which are quite important in some countries. If, say, pharmacists are employed full-time by the ministry of health and work in private pharmacies after official hours, they should be included in the figure for the ministry, even if their private earnings are considerable.

Table 3. Number of pharmacists in 19.., by principal work setting

Work setting	Number	%
Ministry of health		
Other parts of government		
Private enterprises		
Voluntary agencies		
Private practice		
Total		100.0

Another parameter that can be used to describe the major categories of health personnel is sex. This will be relevant only in countries where the proportions of male and female physicians and other health personnel appear to constitute a problem.

Specialization is a feature of many health professions, but is most highly developed among physicians. If the information is available, a tabulation of physicians according to specialty (surgery, paediatrics, internal medicine, psychiatry, etc.) and their percentage distribution can give further useful insights. If specialists are concentrated in one or two provinces, this may be reported, without giving a breakdown for every province in the country.

For all the above-mentioned categories of personnel, information about the supply of teachers and trainers is required for planning purposes. Those currently available on a full-time or part-time basis should be tabulated for each profession, even though these numbers can often be expanded rapidly when need arises.

If traditional health practitioners play a significant role in the country, their number should be estimated along the lines discussed in the previous chapter. Since most of these people work only part-time, estimates should be expressed, if possible, in terms of full-time equivalents.

In many countries, certain categories of health personnel (physicians, nurses, dentists, etc.) are "overproduced" in relation to the economic capability of the country to absorb them, with resultant unemployment. In such countries, information needs to be collected on the extent of the problem, the solutions envisaged, and the future prospects.

Sources of information

Many of the data discussed above should be available from the authorities responsible for official registration. This applies to physicians and dentists, usually to pharmacists, and often also to qualified nurses and midwives. In some countries, however, professional registration is the function of separate bodies outside the ministry of health. In large countries having a federal structure, registration is often handled by the provinces or states, but aggregate national data are still compiled by the ministry of health or a special public commission attached to the ministry.

Many types of personnel, especially those who are not usually trained in universities, are often not subject to government registration. This usually applies to such categories as assistant nurses, laboratory assistants, and junior sanitarians. Information on their numbers and patterns of distribution is most likely to be available in the ministry of health, through the section responsible for manpower planning and training. This section will usually be the best source of data on community health workers, but care must be taken to adjust the total numbers for attrition and turnover, which tends to be high in this category.

A frequent problem in personnel registers maintained by the government is that they are not kept up to date. Persons who may have emigrated from the country, died or retired are not always deleted from the register. The changes in women's names after marriage may complicate tabulations in some cultures. Rough adjustments may sometimes be made to registry data based on the opinions of knowledgeable observers or on surveys which may recently have been conducted.

Other important sources of manpower data are the national associations for the principal disciplines. Medical associations may have more accurate data on *active* physicians (i.e., those not retired, emigrated or deceased) than the official registry. There are also associations for specific types of health personnel, such as physiotherapists, for whom national registration may not exist. Estimates can be made from their membership lists, with appropriate adjustments for non-members.

The tabulation of personnel by work setting probably requires the collection of data from several sources. If the number working for organized agencies can be obtained from some central coordinating office, such as that which often exists for religious medical missions, then the figure can be subtracted from the national total to give the number of private practitioners.

Recent health manpower surveys undertaken by one of the health planning bodies or, sometimes, by a university or research institute, should not be overlooked. In the previous chapter, reference was made to special anthropological studies on traditional health practitioners. Occasionally, as part of an effort to upgrade the performance of such practitioners and of traditional birth attendants, they are required to register with the ministry of health; the numbers of those who do so should be recorded.

Methods of health manpower planning and manpower plans

Various methods of health manpower planning are in use and the exact method or methods employed in a country should be explained. It is possible that the method used could be modified so as to give more socially sound results. Moreover, planning can and indeed should have both quantitative and qualitative objectives.

Perhaps the commonest form of quantitative health manpower planning is what might be called the "market-oriented" type. This is based on estimates of the demand for health personnel in the country, namely, that of the ministry of health and other organized programmes plus that of the private sector. Thus, vacancies in the ministry of health or evidence of a very high demand for private medical services would signal the need for an increased output of certain types of personnel. The size of the increase would depend largely on the existing capacity of training schools, and on how much this might be expanded and at what cost.

Another method of manpower planning is to set certain goals that are intended to produce personnel in numbers exceeding the current supply by a certain percentage, e.g., by 5 or 10%, within a certain period (one year or five years). Thus, if a country has 50 nurses per 100 000 population, it might plan to have 55 per 100 000 in five years. This implies more than simply increasing the output as compared with the number currently produced; the rate of retirement or death of existing nurses will also have to be taken into account, as well as population growth and the availability of qualified candidates for nurse training.

A third manpower planning method is normative, i.e., standards or norms are applied which have been derived in some systematic way. The standards may be based on manpower research in a certain region, where services are provided to a defined population, together with empirical determination of the number of physicians, nurses or other health personnel required. Another basis for drawing up standards is the adoption of the manpower-population ratio that has been found to be satisfactory in another country or in one relatively successful area of the same country. Once a standard is adopted, it may be used as a goal towards which training programmes can be oriented; the rate of progress towards that goal will depend on the speed with which training can be expanded, in relation to the growth of population, and on other factors.

Another approach combines all the above methods, relying simply on the judgement of a panel of experts to whom the necessary data are made available. For each type of personnel, the experts might apply different criteria: estimates of the market; an increase in the current supply; a standard based on empirical research, or foreign experience. Attrition rates must also be carefully assessed and taken into account, whatever method is used. This is often overlooked by planners and therefore warrants special attention. Another aspect, often neglected in spite of its crucial importance, is that of the resources required, both economically and in terms of the availability of candidates for health work, i.e., the realism of the manpower plans.

Together with these methods of quantitative planning, methods of qualitative planning are also necessary. Health manpower goals must be based on a clear understanding of the jobs to be done, based in turn on job profiles prepared from task analyses. For example, it may be decided that the functions to be performed by assistant nurses should be changed or expanded, e.g., to include the dispensing of contraceptive pills to women. Such a decision would make it necessary to revise the training programme for these personnel, as well as to organize additional training for existing assistant nurses. This modification of personnel functions (or job profiles) would also have a bearing on the numbers of personnel needed. Like quantitative planning, qualitative planning should be based on research in which various combinations of functions are tested in practice by functional analyses (e.g., time-and-motion studies).

One of the purposes of a country review of health manpower development is to determine exactly what method or methods of qualitative and quantitative manpower planning are being used by planning agencies. It may be found that certain types of health manpower research, including field trials of various manpower combinations, would increase the effectiveness of the planning process.

Qualitative and quantitative plans for achieving medium- and long-term manpower objectives should then be carefully examined to determine whether they are relevant to overall national health plans and, in general, to health needs and demands. Are the plans in line with national health manpower policy and national strategies for health for all, and can they be implemented? Are the plans being implemented and, if not, why not? What are the factors favouring or impeding implementation?

Sources of information

Information on methods of health manpower planning can be gathered by discussions with those in charge of the planning agencies. Such discussions must be conducted with great discretion, for it is not uncommon to find that those responsible for planning may not be aware of the methods they are applying. They sometimes use certain methods simply because of long-established custom, without considering whether the resultant plans lead to a reasonable response to needs. For example, plans for training certain categories of personnel may require students entering training schools to be secondary school graduates. In fact, this requirement may have led to a shortage of appropriate applicants for years, and therefore been conveniently overlooked; it is sometimes retained largely because of custom and certain traditional notions about "quality". By asking questions about planning methods, certain counterproductive concepts of this type may be brought to light and changed. The coordination of the health manpower plans of the ministry of health with the plans of the overall government planing agency should also be checked. Quantitative manpower plans are usually available both in the ministry of health and in the state planning agency.

Job profiles, which are needed as a basis for developing qualitative health manpower plans, can usually be obtained from the ministry of health or perhaps from a civil service commission. They should be examined carefully, because—if they exist at all—they are often sketchy and based simply on opinion rather than task analysis.

Health manpower research

References have been made to health manpower research as an instrument of health planning; such research may also lead to policy decisions on specific problems in manpower production and management.

The country review should attempt to identify what kind of health manpower research has been or is being carried out. This research is a part of health systems research and, as such, may be the concern of a particular section of the ministry of health. Health manpower research may also be conducted at universities, e.g., by departments of social sciences, medical faculties, nursing faculties, public health faculties, faculties of management, etc. Some manpower research is conducted by professional associations, and occasionally by voluntary health agencies concerned with the improved delivery of certain health services.

Health manpower research may be both descriptive and analytical. For example, a survey may seek to determine the number of traditional birth attendants in a region and their exact practices in attending childbirth. Another type of research may be experimental or evaluative and comparative, e.g., the comparison of the results obtained when the activities carried out by community health workers vary markedly in scope as between one area and another. In the latter example, the evaluation may be based on various criteria, such as population coverage, patient satisfaction, or costs. Either type of research may yield findings that can affect policy decisions.

The extent of both of these types of health manpower research should be determined if possible. If there are several universities in a country where such research might be underway, a sample of perhaps two or three of them might be visited. Health manpower research is sometimes carried out by *ad hoc* committees set up for the purpose; these may be financed by foreign donors or by philanthropists. It is usually possible to learn about such research projects from the ministry of health. Most importantly, an attempt should be made to learn how far research results are actually applied in manpower policy-making and planning, and whether the policy-makers and planners participate, as they should, in formulating and implementing research projects.

Sources of information

Information on health manpower research may be gathered from discussions with the various agencies or organizations involved. Starting with the ministry of health, each person interviewed should be asked about research that he/she has heard about or been associated with. University staff usually know of research going on, of which ministry officials may be unaware, and vice-versa. If a public agency or foundation gives grants for this type of research, it will obviously have relevant information.

If a major health manpower investigation has been completed within the past few years, the reports of that investigation should be obtained. If there is a medical or public health library available in the government, in a university, or elsewhere, it may contain publications or documents on previous research which may have been forgotten.

Information flow on health manpower

Several sources of information about health manpower have been noted above, but not all of them issue regular reports. However, both health planners and health policy makers, would be more aware of both problems and progress in health manpower development if there were a regular flow of accurate and reliable information from the agencies collecting it.

The country review should identify those sources of health manpower data that issue regular reports and should indicate what those reports contain. It may be that more regular and reliable information on nurses is issued by the professional association than by a government registration body. A nurses' association might issue information on the post held by each nurse or his/her most recent location—information which would not be available from the official registry.

Information on manpower issued at regular intervals indicates trends and may therefore (with some caution) be used to forecast future types and numbers. Such forecasts may be crucial for overall health system planning. By identifying the various sources of regular information flow that exist, the country review may be able to stimulate other agencies to issue periodic reports along similar lines.

The information flow should not be limited to mere numbers. By including information on job profiles or such matters as specialization, continuing education, or changing work settings, it can also shed light on the *qualitative* aspects of manpower trends.

Sources of information

Information on the various sources of regular reports on health manpower can be obtained by interviewing staff members of the different organizations discussed above. When a periodical series is found, some samples for the last few years should be collected.

If there is a central office of statistics in the national government, or a statistical section in the ministry of health, these agencies should also be consulted concerning other possible sources of regular information on health manpower. A national census may also contain relevant health manpower data.

General commentary

The very first issue, of course, is whether or not a country engages in health manpower planning at all. If not, then why not? Do health leaders have no confidence in this idea or are they unsure how to go about it? Whatever the explanation, the review may raise questions that stimulate action.

The ultimate test of the effectiveness of health manpower planning is to ask whether and to what extent the plans lead to the production of the types and numbers of health personnel needed to meet the requirements of the country's health system, in accordance with the concept of integrated health systems and manpower development. It is easy enough to ask this question, but more difficult to answer it.

In a country review of health manpower development, answers must be sought to the following types of question:

—Is there a clear health manpower policy based on the national health policy and national health plan?

—Is there a health manpower plan based on the health manpower policy?

—Does the health manpower plan include medium- and long-term (15–20 years) quantitative projections, based on well defined, detailed job profiles?

—Has the availability of human and financial resources necessary to the implementation of the plans been taken into account during the planning (availability of appropriate candidates for training, of schools and courses, of financial resources necessary for the training and employment of the planned personnel, of the absorption capacity of the health services for the personnel it is planned to train, etc.)?

—Are task analyses or other methods used in preparing job profiles?

—Are attrition rates considered in manpower projections?

—Is the health manpower plan implemented?

—Is the implementation of the health manpower plan monitored, and revisions made, if necessary, based on feedback?

—Do manpower plans guide the production of personnel, both qualitatively and quantitatively?

—Do the qualitative plans serve as a basis for monitoring the management of health personnel?

It may also be necessary to consider such questions as:

—To what extent are there clear assignments of responsibility for manpower planning?

—Is there a useful body of information on the total supply (inventory) of health personnel of different types?

—Are the methods of manpower planning rational and systematic?

—Are there appropriate inputs from public and private groups, and especially from communities?

—Is research conducted to resolve certain problems or issues? Are research results being used by decision-makers?

—Is there a regular flow of information on manpower trends, so that forecasts may be made?

—Are the goals set by the health planning bodies being achieved within a reasonable time?

If concrete answers can be found to these questions, they should, of course, be reported. Otherwise, the country review team should record, as accurately as possible, its overall impressions.

5. Production of health manpower

In a sense, the heart of the health manpower development process is the production or training of health personnel. In modern society, this has become a growing and complex activity. Like other parts of the health system, it requires input from, and should be coordinated with, other socioeconomic sectors and particularly the educational sector or system.

After dealing with the educational system as a whole, this chapter will consider the whole range of schools and other training institutions and programmes for all types of health manpower. It will then examine in some detail the characteristics of the training programme for one basic type of health personnel, the physician, and 16 features of schools of medicine will be considered. As far as the equivalent information is available for all the other principal types of personnel in the national health system, it will also be summarized. Special attention will be given to the training of community health workers, whose background and training are quite different from those of conventional health personnel.

The general educational system

Countries differ in both the structure and content of their educational systems. To avoid any confusion as to the academic requirements to be met by various types of personnel, the country review should report the sequence and duration (in years) of education in primary, secondary and perhaps "middle" schools, and perhaps special periods of preparation for university studies, etc. This information does not need to be given in great detail, but it should be enough to enable the requirements for the various health disciplines to be appreciated.

Insofar as data are available, the proportion of the population which completes basic schooling should be reported. In many developing countries, and in some developed ones as well, a substantial proportion of the population may not have continued their education beyond primary school, or not even have attended primary school for more than a few years. Since candidates for university studies must usually have completed secondary school (this also applies to candidates for nursing education and for other forms of training in many countries), it is important to know the proportion of young people that do so. This proportion often differs as between men and women, and these figures should be reported. (Overall literacy levels have been discussed earlier.)

Sources of information

Information about the education system in a country should be obtained from the ministry of education or its equivalent, and is often available in official publications. Data on the proportions of various age-groups that have completed different levels of schooling are sometimes provided by special surveys.

Schools for training health personnel

The fundamental resources needed in training health personnel are different types of schools and training programmes. Some of them may be part of universities, while others may be closely associated with hospitals or with certain types of outpatient health facility. Still other schools may be completely independent of any institution but of the same academic level as universities. Schools for health personnel may be either public or private.

The country review should provide an inventory of all schools in the country training the principal types of health personnel. Since the variety of such schools is very great, it will be convenient to compile the inventory so as to show those that are at university level, and those that are not. Model tables for the number of schools of these two types are given in Tables 4 and 5, respectively. The annual output of graduates of these schools should be indicated, if possible.

Table 4. University-level schools or colleges for training health personnel, 19. . .

Discipline, or type of personnel trained	Duration of training (years)	Number of schools			Annual number of graduates
		Public	Private	Total	
Medicine					
Dentistry or stomatology					
Pharmacy					
Nursing (basic)					
Nursing (advanced)					
Technology (specify)					
Rehabilitative therapy					
Sanitary engineering					
Health administration					
Other public health disciplines					
Medical social workers					
Other (specify)					

Table 5. Non-university-level schools for training health personnel, 19. . .

Type of personnel trained	Duration of training (years)	Number of schools			Annual number of graduates
		Public	Private	Total	
Registered nurses					
Assistant nurses					
Other nursing personnel (specify)					
Midwives					
Assistant midwives					
Pharmacy assistants					
Dental hygienists					
Dental assistants					
Dental technicians					
Opticians or optometrists					
Technicians:					
Laboratory					
Radiology					
Other					
Rehabilitation therapists					
Sanitarians:					
Senior					
Junior					
Dieticians					
Health record clerks					
Health administrative assistants					
Other (specify)					

In both tables, schools are classified in accordance with their sponsorship (public or private). Publicly sponsored schools may be owned and controlled by different sectors of the national government, such as the ministry of education, the ministry of health, or even the ministry of defence, which often has schools for military health personnel. Public training institutions may also be sponsored by provincial or state governments, and sometimes by municipal governments. Private schools may be operated on a profit- or non-profit-making basis, and are sometimes connected with a church or philanthropic foundation. These schools, particularly universities, may be centuries old and have distinguished reputations. Frequently, they are heavily subsidized by government and have sometimes been taken over by government agencies. In some countries, the government sponsors special institutes for postgraduate education.

Ministries of health, education, or social security, etc., may exert an influence on non-governmental schools with regard to enrolments, curricula, or academic policies. The requirements for registration or licensure may have an important impact on which subjects are taught. Grants to private schools may be conditional on certain admission policies or teaching practices. To ensure that certain academic standards are met, a national professional body may require all graduates to pass certain examinations, over and above those set by the school.

Sometimes the schools training non-university-level health personnel, as well as some of the university-level schools, have training programmes for two or more categories of manpower in the same school. Thus, schools for allied health personnel may train nurses, dental hygienists, laboratory technicians, dieticians, etc., in the same institution; certain basic science courses are taken jointly by several types of student, while other, specialized courses are peculiar to each discipline.

Sources of information

To assemble data on schools for health personnel will probably require information from several sources. If the permission of the ministry of education is required before any type of school is established, whether by private sponsors or by local authorities, then this should be the first agency to consult. Unless this permission has to be granted each year, it will be necessary to find out whether schools authorized some years ago are still in operation. Another important source is the ministry of health, which may play a part in the authorization of health-related schools, and which often operates several schools itself. The latter are especially important for certain types of personnel, such as community health workers, various types of sanitation personnel, dental assistants, pharmacy assistants, health record clerks, and laboratory technicians.

In medicine, nursing, and some other professions—especially in larger countries—there are national associations of schools which can usually provide information going beyond the number of schools and their sponsorship (the need for which is discussed below). Associations of personnel in the different disciplines should also be consulted, particularly for the numerous specialties for which there is no association of schools.

In the absence of complete information about certain types of school, a visit should be made to one of the schools, preferably a relatively large one. The director of this school is likely to have information about other schools of the same type.

Training of physicians

The production of health manpower involves much more than the operation of a certain number of schools. The characteristics of the training programmes differ as between the numerous health disciplines and also for a given discipline in different schools. The investigation should begin with an analysis of schools of medicine because they have received greatest attention in most countries, and more information has usually been collected about them.

Information on the number and sponsorship of medical schools has been considered in the previous section. In many countries, there is only one medical school (in some countries there are none), and the task of analysis will be relatively simple. In countries with two or more medical schools, the health manpower development review requires special care; each one may be quite different, or they may all follow similar policies. Time will probably not permit an extensive analysis of all schools; in the case of large countries with many schools, it will therefore be necessary to select a sample. (If there are three schools or less in a country, probably all of them should be studied to some extent).

When sampling is necessary from five or more medical schools, the schools should be carefully selected and not just picked at random. A sample of four schools might include both the oldest and the newest, plus the largest and the smallest (avoiding selection of the same school twice). If there is time to study only two schools, these might simply be the oldest and the newest. Whatever the type of country, the necessary sampling should be done, but it is more important when the policies of the schools are known to differ widely. In certain countries, there may be a particular medical school, usually a relatively new one, that is known to be exceptionally innovative. Whether or not this turns out to be the newest school or the smallest, it should be included in the sample. If there are private medical schools, the sample should include one of them.

For each medical school studied, information should be sought on the following characteristics:

(1) The sponsorship of the school and the year of founding.
(2) The main objectives, as described by the school's leadership. To what extent do these objectives correspond to the professional functions that the graduate trained in that institution should be able to perform? Who defines the objectives, and are they relevant to the goal of health for all? Do they take into account the qualitative health manpower plans of the country?
(3) The sources of financial support and the annual total budget. If possible, the cost of the complete education of one physician should be calculated. Are there student stipends or scholarships, and what proportion of students are assisted financially?
(4) The policy on admission requirements, and the number of students admitted each year. What is the total enrolment in the school, how is it fixed, what is the attrition rate per year, and the number of graduates per year? Does the output correspond to the expectations—qualitative and quantitative—in national health manpower plans? Is the school leadership aware of those plans? What are the trends?
(5) The physical facilities, including classrooms, clinical resources, library, laboratories, teaching staff offices, student living quarters, etc.
(6) The basis of curriculum planning. Who is responsible for it? Is it based on clear definitions of the competences to be acquired? How many years of study are required for the basic medical degree, and (in a conventional, discipline-based curriculum) how are the

subjects to be covered arranged? What proportion of time is devoted to mandatory subjects and to electives? Approximately what proportion of curriculum time is devoted to: (*a*) basic sciences; (*b*) clinical subjects—with and without patients; and (*c*) practical training in the community, including field studies? What are the learning objectives in all these areas in relation to the primary health care approach, preventive medicine and health promotion, and to the psychosocial as well as the somatic aspects of health? What is the language of instruction and of textbooks? Are textbooks translated or adapted from those of other countries?

(7) Teaching/learning methods. Are deliberate efforts made to train for teamwork, e.g., by organizing joint problem-solving exercises and community health work with other health students (nurses, sanitarians, etc.)? To what extent are lectures used, as compared to small group exercises, clinical experience with patients, community observation and experience, etc.? Is the subject matter organized principally in terms of academic disciplines (physiology, surgery, etc.), organ systems or problem-solving, or are other integrated approaches used? To what extent are different levels (tertiary, secondary, and primary) of health care being used for learning experiences? Are adequate teaching/learning materials available, such as charts, slides, films, text books, reference tools, etc.? How far and by what methods is individual learning facilitated, and are students learning how to develop and improve the skills of other health workers?

(8) The teaching staff. How many teaching staff are there, full-time and part-time (the latter in full-time equivalents, if possible) and what is the staff/student ratio? What proportion of the teachers are full-time? What is their relationship to teaching hospital personnel? What are the criteria for appointment, promotion, and tenure? Are teaching skills and achievements appropriately considered in those criteria?

(9) Teacher training. Is there a teacher-training programme to which teachers have access—in the same school or elsewhere—in which effective teaching methods can be learned? What proportion of the teaching staff has completed such a programme? Are there arrangements for members of the teaching staff to be kept regularly up to date in their disciplines?

(10) The degree of emphasis on or orientation towards: (*a*) the concept of health for all; (*b*) the primary health care concept and skills; (*c*) community health problems; (*d*) problem-based education; (*e*) multi-professional (team) education; (*f*) management concepts and skills; and (*g*) innovative education and training, including the concept of student-oriented education.

(11) The postgraduate training courses in medical specialties or in other subjects offered by the school. They should be described in terms of the number enrolled per year, links with hospital-based or other residency programmes, examinations, etc. Are the programmes oriented towards clearly defined competences?

(12) Continuing education. Does the school offer continuing education, regular courses or periods of instruction for physicians or other health personnel working in the health system? On what subjects? How far are these programmes oriented to improving competences and performance? Does continuing education emphasize the primary health care approach and the goal of health for all? Are incentives offered or other methods used to encourage attendance by physicians and other health personnel? Is there any evidence of the effect of continuing education on the quality of performance of physicians?

(13) Examinations. What forms of examination are used to evaluate the performance of undergraduate medical students? Are these standardized nationally or is each school free to design its own examinations? If academic degrees are awarded on the results of national examinations, which body administers them? Are these examinations competence-oriented? How relevant are they to the goal of health for all through primary health care?

(14) Evaluation. Are there methods of evaluating the performance of medical school teachers, such as a review by their peers or by students? Is programme evaluation a permanent feature of the school's activities, and are the results used to adjust programmes? Are graduates regularly followed up to discover their career choices and how adequately the school's programme has prepared them for their careers? Are these findings used in curriculum adjustment?

(15) The relevance of the medical school programme to the needs of the national health system. If several schools have been examined in the country review, are there any significant differences in the way each appears to respond to the health needs of society? Does one school excel in respect of certain needs, and another school for other needs? In the design of medical curricula, are deliberate efforts made to provide a programme that will produce the types of physician required in the country? Besides teaching, does the school conduct health systems research and provide services that show an awareness of community needs? Does its overall programme reflect social accountability?

(16) The main difficulties or constraints faced by the medical school. Are there plans to solve these problems? Is there any special resistance to changes that the school leadership proposes to make—especially changes intended to make the school's programme more relevant to national needs and requirements? What changes in the structure and performance of the school can be reasonably anticipated in the next five years?

Sources of information

The 16 items listed above will seldom be easy to deal with. The country review team will have to visit the medical schools and speak at some length to the dean, selected members of the teaching staff, and a representative group of students. If possible, the team should also meet vice-deans, chairmen of various school committees (e.g., those for curriculum, admissions, student affairs, evaluation, etc.), the university vice-chancellor, or other officials responsible for health sciences, and representatives of student organizations. Many schools have an administrative officer who would be the best person to provide financial and other quantitative information. It will also be necessary to visit the school's buildings, including any associated clinical and community health facilities. Information may also be found in the school catalogue, which should be studied. For some topics, only general impressions can be reported, even after all the discussions and observations.

Training of pharmacists and pharmacy assistants

Schools for training pharmacists may be analysed essentially along the same lines as medical schools. In most countries, where such schools exist, they form part of universities, although they may sometimes be separate. If there happen to be five or more schools of this type in the country, sampling will be necessary, as explained for medical schools.

Virtually all of the 16 items listed for medical schools will also apply to pharmacy schools. With respect to certain topics, however, the formulation may require adjustment. In item (6) on curriculum, for example, "basic sciences" would be equally applicable, but "clinical subjects" might have to be replaced by "pharmacy practice". In item (10) the reference to "primary health care" should be supplemented by specific mention of the WHO policy on essential drugs.

Many of those who assist in a pharmacy have no special training except experience on the job. In many countries, however, there are organized programmes for training pharmacy assistants—particularly, but not solely, in developing countries, where these personnel staff drug-dispensing rooms in health centres. They are usually trained at a hospital or in some setting outside a university.

Questions about the training of pharmacy assistants need not be necessarily the same as for medical schools. The first five items would be appropriate, after which highlights of (6) on the curriculum, of (7) on methods of teaching, of (10) on orientation, of (12) on continuing education, and of (16) on major problems should be explored. Also, under (10), reference should be made specifically to the WHO policy on essential drugs. If schools for pharmacy assistants have different sponsors, then an example of each type of sponsorship should be analysed.

Sources of information

Information on schools of pharmacy and schools for pharmacy assistants can be obtained through visits to these schools. Most of the necessary data should be available from the school directors, and perhaps one or two other members of the faculty. Meeting a representative group of students is also extremely important here, as in other types of school.

Training of dentists and dental personnel

Dentists (or in some countries stomatologists) are usually trained in universities. All of the 16 items for medical schools would be appropriate for dental schools. Under item (6), on the curriculum, specific reference should be made to preventive measures, such as screening, fluoridation, and oral health education, in connection with practical work in the community.

There are numerous other types of dental personnel, many of whom are simply chairside assistants, trained on the job. Personnel for whom formal schooling is provided include dental hygienists, dental technicians or mechanics, or the New Zealand-type "dental nurses", or their equivalent. Schools for these types of dental health personnel are most likely to be found outside universities, although in some countries one or more of them may take the form of appendages to university dental schools. Of the 16 items for medical schools, complete reports are needed only for the first five, and only the highlights noted for items (6), (7), (9), (10), (12), (15), and (16). In the oral health field, practical education for specific technical skills is crucial.

Sources of information

Visits will have to be made to the schools, where discussions should be held with the dean or director, as well as with students. In dental services, proper equipment, instruments, and practical training in communities are of special importance, and these should be observed.

Training of nurses, midwives and auxiliaries

Nurses of various grades are found in all countries, and usually constitute the health profession with the greatest number of members. In many countries they tend to become the backbone of a health system based on the primary health care approach. The ways that the different grades of nurse are defined vary greatly from country to country, and the types of school in which they are trained differ correspondingly. Because of the relatively large numbers of nurses and auxiliary nurses required for national health systems, and because schools are usually attached to health facilities, class size tends to be small and the number of nursing schools is generally rather large. There is usually a need for sampling, therefore, in the selection of schools to study.

The first task in reviewing nursing education is to acquire a clear understanding of the several grades of nurse. The highest grade is usually recognized as professional, and training is typically for at least three years after secondary school. Below this grade, there may be one, two or even three grades of auxiliary nurse. The schools for training these different categories of professional and auxiliary nurses may be quite separate or they may be located in the same institution, but with different students and different curricula. Professional-level nurses may sometimes receive their basic education and training in university-based schools; after basic training, university-level postgraduate nursing education is relatively common—in post-basic schools as well as in academic degree programmes (Bachelor's, Master's, and Doctorate).

The schools training professional-level nurses (often called registered nurses) should be analysed thoroughly, since these are the nurses who will provide leadership for the entire nursing profession—usually after appropriate post-basic training. They often serve as teachers and also supervisors for the other grades of nurse and sometimes for community health workers (see below). After a proper sample of these schools has been selected, the analyses undertaken should include all 16 items used for medical schools but the exact meaning and implications of certain questions will be somewhat different for nursing schools as compared with medical schools. Thus, under item (6) on curriculum, the reference to practical work in the community should be expanded by putting special emphasis on psychosocial and family problems, health promotion, prevention, and rehabilitation at community level, with which the nurse must be particularly concerned. Under item (10), on orientation, the management, supervision, and continuing education of personnel and patients in hospitals and other health facilities, including those at community level, should be explicitly mentioned.

Training should, of course, prepare students for their future functions. The scope of the activities that professional nurses are authorized by law and custom to carry out has gradually broadened in most countries. Increasingly, nurses are called upon to perform procedures that were once reserved for physicians. Sometimes nurses are expected to diagnose and to treat (by means of drugs or otherwise) common ailments, with or without medical supervision. In the nursing school, these responsibilities may or may not be recognized in the curriculum, and this matter should be specifically explored. The curriculum should also be analysed from the viewpoint of the competences required by nurses at various levels, including the training, supervision, continuing education, and management of community health workers and/or services, when appropriate.

In the study of schools for auxiliary nurses of various grades, sampling will probably also be necessary. The first seven items for medical schools will require the most attention, plus items (10), (12) and (16). Under curriculum, the focus should be on the instruction provided for performing specific health tasks (defined in the list of competences). In some developing countries, auxiliary nurses, as well as professional nurses, are expected to diagnose and treat common ailments, especially in rural areas. Paradoxically, in isolated rural posts they may be expected to do more in the way of treating patients—in addition to health promotion, prevention, and rehabilitation—than professional nurses in an urban hospital staffed by physicians. It is necessary to determine, therefore, whether their training prepares them for providing such services.

The possibilities of advancement have special significance for auxiliary nurses. Do the schools for auxiliary or professional nurses offer courses that enable an auxiliary nurse to advance to a higher level? Does the usually lower level of education of the auxiliary nurse block further advancement?

The schools for midwives and assistant midwives should be investigated essentially along the same lines as those for nursing personnel. Special attention should be given to instruction on the most practical aspects of childbirth, both at home and in hospital. The same will apply to maternal and child health services, especially prenatal and post-partum care, and also to family planning, along the lines of the primary health care approach.

In some countries, midwifery may be practised by nurse-midwives, instead of or in addition to midwives. If so, graduate nurses study midwifery on a postgraduate basis, and this may constitute a special programme in nursing and/or midwifery schools.

Still another type of training programme in many developing countries is that for traditional birth attendants, usually through short courses given in rural health centres or hospitals. These courses are typically sponsored by the ministry of health, and the highlights of the curriculum, teaching methods, and teaching qualifications should be reported. If possible, the results of training, in the way of improved performance, should also be reported. When nurses and midwives provide the training, their preparation for this role should be specifically examined.

Sources of information

It will be necessary to visit a sample of each of the types of schools of nursing or midwifery discussed above, including training programmes for traditional birth attendants. The nursing leadership in the ministry of health should be fully involved in selecting the schools to be visited. Likewise, advice should be sought from the national associations of nurses and midwives, if they exist.

Training of community health workers

For many decades—even since the nineteenth century in some countries—personnel other than physicians and nurses have been trained to diagnose, treat, and prevent disease. Their training was mainly by apprenticeship—observing and working at the side of physicians, usually in hospitals. Eventually, more formal programmes of instruction were developed, lasting perhaps a few months up to a few years. These health workers have been known, *inter alia*, as feldshers, medical assistants, hospital assistants, health officers, rural health technicians, health post aides, village health workers, and barefoot doctors.

The exact functions of these personnel, the duration of training, the framework within which they work, and so on, have varied much more than their titles. The same category of health personnel may have different characteristics in different countries, and these characteristics sometimes differ at different times or places in the same country. In recent years, the term "community health worker" has been rather widely adopted to describe those whose training has been comparatively brief. (Feldshers, hospital assistants, and others receiving two to three years of training after secondary school or in special secondary schools, are more often considered as allied health or middle-level health personnel.) Even so, the precise meaning (in terms of training, functions, etc.) of the term "community health worker" still varies. Moreover, in the same country there may be two or more grades of community health worker, especially when those with greater experience, and sometimes more training, become supervisors of others. These different grades of community health worker are playing an increasing role in providing primary health care in the rural areas of developing countries. Their training usually prepares them to provide most or all of the eight essential elements of primary health care (as defined in the Report on the Alma-Ata Conference),[1] but they are sometimes trained only to provide certain specialized services, such as maternal and child health care and family planning.

Community health workers are usually trained in settings very different from those of schools for training conventional health personnel. Training usually takes place in rural health centres or hospitals, to which classrooms and student living quarters have been added. The training is nearly always sponsored by the ministry of health, sometimes in collaboration with foreign agencies or international organizations. Candidates for such training are typically young men and women from rural families, who will probably not have applied for admission but will have been selected by their communities. During training, the student is fully supported, and on completion usually returns to the community of origin or, rarely, is assigned to a post designated by the ministry of health.

In many countries, community health workers are trained at several different locations and under different circumstances, so that sampling may become necessary. A section of the ministry of health should be able to provide a full list of these programmes, from which a sample may be selected. Because of their special character, such programmes should be investigated differently from the schools discussed above. The investigation should cover:

(1) The setting of the training programme and when it started.
(2) The sponsorship and source or sources of financial support, and the relationship of the programme to health manpower plans. How far does it reflect qualitative and quantitative goals?

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[1] WHO. *Alma-Ata 1978. Primary health care.* Geneva, World Health Organization, 1978. ("Health for All" Series, No. 1).

(3) The method of selecting candidates for training, the qualifications required in terms of literacy, education, sex, marital status, personal character, and any other attributes, such as training by the community, the number of trainees enrolled per year, and the number completing training.

(4) The physical facilities available for teaching, gaining experience, and for housing students and teachers.

(5) The content of training. Does the curriculum reflect a well-defined list of competences to be acquired, thereby preparing the community health worker for the essential tasks of primary health care, including participation in community development? What is the duration of the programme (in weeks and hours per week)? What proportion of the time is devoted to theoretical instruction and what proportion to practical experience?

(6) The qualifications of the teachers. Have they been trained for this type of teaching? What teaching/learning materials are available, especially audiovisual aids? What is the language used in the classroom and in the textbooks and manuals?

(7) The arrangements for field work. Are one or more health posts and health centres available and suitable for practical experience, under supervision?

(8) Continuing education. Is there periodic retraining after the initial course? What is the periodicity and duration of the courses and how are community health workers made to attend them? Are there incentives to continue learning?

(9) Assessment. Is some form of examination given at the end of the training, whether practical, oral or written, or a combination of these? If so, what are the failure and attrition rates from all causes? If there has been any evaluation or follow-up study of community health workers at this or another location, it should be reported.

(10) Major problems. What are the difficulties encountered in operating the training programme, including those that may become apparent only later when the community health worker is on the job?

Sources of information

Information on some of the above ten items may be sought first at the ministry of health and/or some other agency responsible for conducting these training programmes. Visits to one, two, or more actual training sites, however, are important if satisfactory answers to most of the questions are to be found. It is also essential to talk to some of the community health workers, to get an idea of what they know and, more important, what they can do or have been taught to do, and to try to learn how they go about their work, how they are supervised, how they relate to their communities, and what problems they encounter.

If different grades or types of community health worker are being trained in a country, it will be necessary to study examples of the different training programmes. If there are still programmes for training single-purpose workers, such as providers of family planning services or immunizations, these should be noted.

Training of diagnostic technicians and assistants

Several types of technician play specialized roles in the diagnosis of disease. Laboratory technicians and their assistants are most numerous, and they may specialize in microbiology, parasitology, biochemistry, haematology, tissue pathology, etc. In addition, there may be technicians for radiography, for electrocardiography, or even highly specialized techniques, such as electroencephalography.

In the country review, it will not be necessary to study the education and training of these personnel in great detail. Most of the different types of technician are trained in hospitals, usually in relatively large ones. Occasionally, there are private schools separate from any health facility. In some countries, a major medical research institution may offer training for different types of laboratory technician.

Only the highlights of this training need be reported in the country review. These would include:

(1) The sponsorship and physical setting of the school as well as the source of financial support.
(2) The general content of the training programme, its relation to the future tasks to be performed (job profile), as well as to national manpower plans (qualitative and quantitative), and the duration of the training and the way that it is divided between theory and practice.
(3) The number of admissions and of graduates produced each year in relation to manpower plans, the principal places of employment (public and private), and any follow-up surveys of graduates.
(4) The qualifications of the teachers.
(5) Major problems.

Sources of information

Information should first be obtained on the types and number of schools for training technicians and their assistants in the country. If the ministry of health maintains a public health laboratory, the director will be a good person to consult, otherwise the director of the laboratory or X-ray department in the country's major tertiary-level hospital will be the most likely person to have such information.

On the basis of this information, a visit might be made to the largest school or programme for training each type of technician and their assistants. If a private school exists in any of the technical fields, it should also be visited.

Training of environmental health personnel

Several grades of health personnel are concerned with the control and improvement of environmental sanitation, and they have a wide range of qualifications. Most advanced is the sanitary engineer, who is usually trained at a university or a polytechnic of similar academic level; however, very few of them are found in developing countries. In some countries, public health sanitarians may also be university graduates (without being engineers), but most often non-engineering personnel are trained outside universities.

Sanitarians or sanitary inspectors (sometimes called public health inspectors or overseers) may be of two or more educational levels. A senior sanitarian, who typically supervises other sanitary workers, may have undergone several years of training (often three years) after completing secondary school. A junior sanitarian is typically trained for one year or less and may only have completed primary school. There may be even more briefly trained sanitation personnel in some countries, equivalent basically to community health workers (trained for just a few months) but concerned solely with environmental problems.

The first task is to identify the range of training programmes that exist in the country. This information is likely to be available from the relevant section of the ministry of health which may also be able to provide the names and locations of all the schools for the training of sanitary engineers and each grade of sanitation worker. There may also be an association of sanitarians which could provide a list of schools.

For each type of school, information should first be gathered on the five items listed for diagnostic technicians. In addition, inquiries should be made about continuing education and career mobility. Is it possible, for example, for a junior sanitarian to undergo training in order to advance to the level of senior sanitarian? The relevance of training in environmental sanitation to social needs might perhaps be taken for granted, but consideration of curriculum content in relation to those needs might lead to some surprises. This matter should be explored and reported on.

In a few countries, there may be training for specialists in occupational health; this is sometimes a university-level discipline. The ministry of labour should be asked about this possibility.

Sources of information

After the schools or training programmes discussed above have been identified, a visit should be made to one school (preferably the largest) of each type. Information should be sought from the school director, and any available documents should be obtained. For the programmes for the training of senior and junior sanitarians, it is also necessary, as in other programmes, to speak to students.

Senior personnel in environmental health at the ministry of health will probably have opinions about the appropriateness of the various training programmes to the needs of the various environmental functions and responsibilities of the ministry of health.

Training of health leaders and administrators

Every national health system infrastructure requires leaders and administrators, many of whom will have had no special training, but have simply acquired their skills through experience. Both leadership and administration are necessary at the different levels of the health system and the health services, whether it is a district, province or the whole country, or a hospital, health centre, or dispensary.

In many countries, leadership in public health is regarded as the prerogative of physicians, whether or not they have had any administrative training. In some sectors of the health service, it is assigned to nurses, sanitarians or other technically qualified people. In the absence of formal training in administration or management, these professionals are sometimes assisted by junior personnel who have received some relevant training.

Training in health leadership and administration may be provided in different ways. In several countries there are university-level graduate schools of public health, where physicians and other health personnel (sometimes social scientists) may receive advanced training in public health. This usually includes health administration, epidemiology, environmental health, health education, statistics, and other specialties. The programmes may lead to an academic degree, requiring one or more years of study, or they may consist of short courses and workshops. Graduate schools of public health have very varied objectives and programmes, the nature of which should be analysed in a review of health manpower production.

In addition, medical schools (and in some countries postgraduate schools) have departments of preventive and social medicine or similar departments known by other names (community health, community medicine, public health, etc.). These departments may offer postgraduate training for physicians and, occasionally, for other health personnel. The general trend here, as in graduate schools of public health, has been to offer training for a range of health professionals besides physicians.

Apart from these schools, there are colleges of business administration, public administration, or management, which may offer both undergraduate and postgraduate courses. They may offer instruction to health personnel in general administration or specialized programmes in health administration, hospital administration, or even in health policy and planning. These schools also offer short in-service courses not leading to an academic degree.

Outside the universities, instruction in the principles and techniques of administration may be offered by still other types of school. Vocationally oriented secondary schools may train various types of administrative clerk or bookkeeper. Ministries of health may hold workshops or short courses for their own personnel in leadership positions to enable them to carry out their duties more effectively. Similar courses may be provided by some professional associations. Occasionally, a social security agency will do the same for its staff, and sometimes a large tertiary-level hospital will offer brief workshops on the administration of hospital departments.

As national health systems become more complex, the importance of effective leadership and administration is becoming more fully appreciated. Many organizations within a health system may have high-quality personnel and equipment, and yet function very inefficiently for lack of effective leadership and administration. A review of the training resources in administration should therefore not be considered as merely a marginal matter, but should be undertaken without fail.

An attempt should be made to identify the relevant training programmes that are available, and to seek information about them, as follows:

(1) The sponsorship and date of establishment, as well as the source of financial support.
(2) The admission requirements and the number of persons admitted and completing training in a recent year.
(3) The main content of training, both theoretical and practical. What competences does the programme aim to teach, and how relevant is it to qualitative and quantitative health manpower plans and national health-for-all strategies?
(4) The qualifications (technical and educational) of teachers and the principal methods of teaching, including the use of teaching/learning materials.
(5) The availability of continuing education, if any.
(6) Major problems.

Sources of information

If the ministry of health has a high-level administrator in charge of fiscal, personnel, procurement, and related matters, he should be the first person to consult in identifying training programmes in administration or management. The dean of a major medical school should also be consulted, as he should be able to identify a school of public health or an equivalent source of graduate training, including the medical school's department of preventive and social medicine (or such departments in other medical schools). If there is a chamber of commerce, it might have information on short or degree courses in management. If a hospital association exists, it too might have similar information or might even sponsor such instruction itself. The same applies to public health associations, where they exist.

To the extent possible, visits should be made to one example of each of the different types of training programme in leadership and administration that have been identified. The information listed above should be sought from the person responsible for the training programme and, of course, from students. Management training is relatively new, so that information should also be included on plans for future training courses.

Training of other personnel

Other categories of health personnel are found in many countries, although less often in the developing than the developed countries.

Among these are:

- —medical assistants (feldshers, etc.), sometimes grouped with nursing personnel;
- —nutritionists and dieticians;
- —social workers (medical or psychiatric);
- —health record librarians and information specialists;
- —opticians and optometrists;
- —podiatrists and pedicurists;
- —rehabilitation therapists (physical and occupational);
- —speech therapists and audiologists;
- —geriatric personnel;
- —psychologists and other mental health personnel.

Many of these personnel, if they exist in developing countries, have often been trained abroad; in such cases, they will have served an apprenticeship in their own country.

If there are any training programmes (not necessarily established schools) in any of the above specialties, they should be visited. Such programmes can probably be identified through discussions with representatives of the discipline working in a large tertiary hospital.

Information on any school or programme should be confined to the six items listed above for training in leadership and administration. If the annual output of the programme is less than five in the most recent year, it is probably not worth the time required to collect information; it will be sufficient to report the existence of the programme, unless there are plans for significant future expansion.

Two other categories of personnel should be noted, although no time should be spent in studying them. Every national health system has large numbers of custodial, domestic and other personnel in hospitals, health centres, and elsewhere, e.g., cooks, drivers, cleaners, maintenance workers (equipment, building, etc.), receptionists, file clerks, secretaries and guards. They are crucial to the operation of health facilities and programmes, and some of them, e.g., secretaries and maintenance workers, require substantial training. Their skills, however, are general, rather than in a specific health discipline, so that they need not be studied in country reviews. If there are courses, however, specifically for training medical secretaries or medical equipment maintenance personnel, these should be studied, at least briefly.

Other people involved in health care are the traditional health practitioners of many types and the traditional birth attendants. In all but a few countries, however, they have no formal training beyond apprenticeship to older practitioners and experience (or short courses given by the ministry of health for improving their competence and skills and linking them to the health system). The major exceptions are practitioners of Ayurvedic and Unani medicine in India, Burma and Sri Lanka, and practitioners of traditional Chinese medicine, including acupuncture, in China, Viet Nam and Malaysia. These latter types of traditional medicine have a long history and tradition, and are taught in their own schools, and even in schools supported by the national government.

Traditional health practitioners work (except perhaps in China) principally within the private sector. In countries where the training and use of traditional practitioners have been fully institutionalized by the government, their training must be properly analysed. Where this is not the case, there is no need to explore their training, formal or informal, in the country review.

Sources of information

Schools for training the categories of personnel discussed above should be visited only if their annual output is five or more. Schools for training traditional health practitioners should be investigated to the extent necessary to understand their place in the national health system—which may, indeed, be significant—as discussed in Chapter 3.

General commentary

When all the information on training programmes and schools for health personnel has been collected, the country review team should attempt to assess the overall manpower production process. Answers to questions of the following type should be sought for the entire range of schools:

(1) Are the training programmes, as a whole, training health personnel with the competences and in the numbers required by the objectives of the national health manpower plans?

(2) Do the relative proportions—in terms both of number and quality—of the training programmes for different types of personnel seem to be appropriate? For example, is too much importance attached to medical schools, in relation to that given to schools for nurses? Is there adequate training for personnel in environmental health? What other judgements of this type can be made?

(3) In the light of total national health expenditures, does the overall investment in the education and training of health personnel seem adequate?

(4) Is the training of health personnel in the different schools carried out efficiently? Would the training cost less if the schools for several types of personnel, for whom many of the educational needs overlap, were combined?

(5) Over the entire range of schools, do the educational programmes have a reasonable balance between theory and practice? Is adequate provision made for various types of field training and practical work in urban and rural communities? Are there well-established field practice areas or even whole communities for training health personnel through practical experience? Is field training sufficient to achieve well-defined objectives?

(6) Are innovative educational concepts and methods (community-oriented, community-based, competence-based, learner-oriented, problem-based, teamwork-oriented, etc.) applied in any (or more than a few) of the schools? What are the main characteristics of such teaching? What are the prospects for, or obstacles to, the spread of such concepts and methods?

(7) Are the training programmes realistically oriented to the organizational structure of the entire health system? Is there unwarranted emphasis on the needs of urban centres, the private sector, hospitals, tertiary care, or certain government agencies, to the exclusion of others?

(8) Are the teaching staffs of the different schools conscientious and adequately rewarded? Is teaching only a part-time function of staff engaged *mainly* in other activities? Are they appropriately trained, technically and educationally?

(9) Are the school buildings (including student housing) and other facilities conducive to learning?

(10) Is the performance of graduates evaluated regularly to provide feedback on the soundness of the entire training programme?

(11) In the light of the major health problems in the country, are the curricula appropriate to the training of graduates to cope with those problems and particularly with their prevention, as well as treatment and rehabilitation?

(12) Are there differences between the curricula and policies of different schools in the same field that cannot be justified in terms of innovativeness and academic freedom?

(13) What are the qualitative, quantitative and institutional plans, prospects, and projections in the education of health personnel?

(14) Is the overall production of health personnel appropriate to the diverse needs of the national health system? Do the schools make a reasonable effort to meet the needs for health systems research and for training in management?

(15) Since the International Conference on Primary Health Care in Alma-Ata in 1978, virtually all governments of the world have declared their intention to achieve the goal of health for all through primary health care. In this spirit, are the educational programmes for health personnel designed to further the implementation of national health-for-all strategies?

Answers to most of these questions, though necessarily based on impressions, must take into account what is *not* observed in schools as much as what *is*. Education in the health sciences and health care disciplines, though technically correct, all too often completely fails to recognize the ultimately human and social objectives of all health services. The extent to which those objectives are recognized can provide a basis for judging educational programmes.

6. Management of health manpower

After health manpower has been planned for and trained, it must, of course, be properly utilized (or managed) if the health manpower development process is to achieve its objectives. Health manpower management (utilization) should serve the development of health systems based on the primary health care approach to implementing national health-for-all strategies. This chapter will consider how manpower utilization may be studied and assessed in a country review. Special attention will be given to manpower utilization in ministries of health and the services under its control, but some consideration must also be given to other parts of the national health system.

Introduction

Health manpower management implies that health personnel are utilized in a manner that is consistent with their skills and competence and under conditions that promote effective work. It also covers the geographical distribution of health staff in a country and its relationship to that of the population and their needs for health services.

In the organization of health programmes, the aspects to be considered include satisfactory conditions of work, the definition of the functions to be performed by each type of personnel, and appropriate personnel policies. (The requirements are sometimes embodied in legislation.) We shall consider these three aspects of manpower management principally in ministries of health and the services under their control. However, a few words must first be said about the legal authorization of health personnel to practise after their education and training have been completed.

Authorization to practise

All countries have certain legal or regulatory requirements that must be satisfied before newly trained health personnel are permitted to practise their profession. The exact requirements differ, of course, both from country to country, and for various types of personnel within a country. In some countries, health personnel have to be licensed in addition to completing the prescribed training; in others, registration by the government is more or less automatic after the prescribed training, including the examinations, has been successfully completed.

For some disciplines, such as medicine, dentistry, nursing, or pharmacy, the legal requirements for the licence tend to be more rigorous than for others. Certain personnel, such as assistant nurses or pharmacy assistants, may not need any formal authorization.

In some countries, licensure or registration of health personnel is a responsibility of the national government, usually through the ministry of health, but sometimes through special commissions. In countries with a federal structure, these responsibilities often fall to provincial or state governments. If health personnel move from one province to another, they must then become registered or licensed in the new area. Although obtaining this authorization is usually a simple procedure, it may exceptionally be used for disciplinary purposes. If a physician or nurse, for example, has been found guilty of improper behaviour, the authorization may be withdrawn for a certain period of time or even permanently.

In some countries periodic renewal of the authorization to practise is required at stated intervals (usually annually). This provides up-to-date information on health manpower resources, allowing adjustments for those who have died, retired, or emigrated. More important is the use of relicensure or reregistration as a means of ensuring that health professionals remain reasonably competent. Frequently, the practitioner must merely produce evidence of having recently attended an appropriate refresher course, otherwise an examination on new scientific developments must be passed, or some other proof of continued competence provided.

The legal authorization to practise may be contingent upon the fulfilment of certain obligations. Many developing countries, in an effort to provide health services to rural populations, require new medical and dental graduates (sometimes also pharmacists, nurses, and others) to serve in a designated rural area for one, two, or more years; only after they have completed this period of service are they entitled to be registered or licensed to practise. However, such requirements are sometimes only weakly enforced, exemptions being granted for family reasons, for certain types of specialized study, or other reasons. A country review should determine not only whether such requirements exist, but also the extent to which they are implemented.

The relevant facts about all forms of regulation of health personnel, as discussed above, should be determined. Gaps or deficiencies may signal the need for new or strengthened legislation or regulation of some sort.

As far as the qualification or certification of physicians, and sometimes nurses, as specialists, e.g., as surgeons or cardiologists, is concerned, still other procedures may apply. Specialization ordinarily requires an additional period of training, often in a hospital, after the basic qualification has been obtained. Following this, either the title of specialist is automatically awarded, or written and practical examinations must be passed. Such postgraduate studies are often supervised and the examinations administered by committees appointed from within the specialized discipline itself, although final certification as a specialist may be the responsibility of a government authority. Opportunities for specialization are always limited. In some countries, the requirements may be relatively easy to satisfy, but the applicant must still be accepted for the training programme. In many others, entry into specialized training is difficult, and only physicians, nurses or others with specific qualifications may apply. The completion of a certain number of years of rural health work, for example, may be a prerequisite for specialized training. Since specialization ordinarily means greater prestige and higher earnings, many wish to undertake it but, needs are limited.

As regards the employment of health personnel in government, the review and approval of special public agencies (civil service commissions, finance ministries, etc.) are sometimes required. This is particularly important if a new type of position is being established. Implementation of the most careful manpower planning by a ministry of health may be impeded by the disapproval of such bodies, based on government policy for all types of manpower.

Sources of information

Information on the licensure or registration of different health professions is usually available from the responsible official bodies in the ministry of health or closely associated with it. If a country with a federal structure is being studied, it will be necessary to visit this official body in one of the provinces, preferably a large one. Information on the relevant requirements for periodic relicensure, continuing education, mandatory rural service, and the use of licensure as a disciplinary tool should also be sought from this agency. It is important to try to determine the thoroughness with which such measures are actually implemented.

Data on specialization may be more readily available from professional associations. If these groups do not have the information, it may be necessary to consult one of the specialty associations, if they exist. Many developing countries do not provide training in all specialties and some candidates must therefore go abroad. If so, their specialist status might be recorded by the national registration authority.

Conditions of work—ministries of health

Wherever a person may work after qualification, the country review should determine the conditions of work, the functions performed, and the personnel management policies. To gather this information for all work settings and for all categories and types of health personnel would be a formidable task in any country. To make the task feasible, particular attention should be given to conditions in the major facilities of ministries of health and, within these, only the most important types of personnel.

The review should contain an organization chart of the ministry of health and, to the extent available, a programme budget (see also Chapter 3). In most ministries, including the services and activities for which they are responsible, there are dozens of settings in which health personnel may work, e.g., offices at different administrative levels, and many types of health care facilities. The country review should set out to determine conditions of work in hospitals (urban and rural), polyclinics, health centres (urban and rural), and rural health posts. For each of these types of institution, it will be necessary to select at least one appropriate example. Random sampling is not recommended, but the responsible officials in the ministry of health should be asked to select those facilities that are considered most representative or typical. (It can be assumed that those selected will be facilities that are somewhat better than the average.)

Urban hospitals

The working conditions of physicians of different levels, nurses of different grades, laboratory and X-ray technicians, and possibly others should be determined. Are all the physicians engaged in full-time hospital work or are some free to leave the hospital at certain times and engage in other work (such as private practice)? What is the staff organization of the physicians? Is there a hierarchy of authority throughout the hospital? Are certain physicians responsible for certain groups of patients? What are the hours of work per day or per week, and are physicians on call at other times? Are there clear job profiles for all medical staff members (as discussed more fully below)? Are physicians not on the hospital staff entitled to treat private patients in the hospital? If so, have the regular staff physicians any responsibility for these patients? Is there a rota system for nights and weekends? Aside from any hierarchy of medical authority, are there committees or other mechanisms to oversee or monitor the work of all physicians? What are the housing arrangements for physicians?

Other aspects of personnel management may be investigated during an initial visit, although they are discussed below under "personnel functions" and "administration". These include the extent of teamwork, supervision, performance assessment, career mobility (vertical and horizontal), continuing education, salary scales, financial and social incentives, job security, pension schemes, job satisfaction, the general atmosphere of the hospital, etc.

Similar data should be gathered on the working conditions of different grades of nurses. The working hours, conditions, housing, etc., of assistant nurses may differ considerably from those of professional nurses; information on both should be reported. The same applies to laboratory and X-ray technicians, hospital pharmacists or pharmacy assistants, dieticians, and so on.

Rural hospitals

Essentially the same information on working and living conditions should be gathered for health personnel in a smaller rural hospital. The range of responsibilities of physicians, nurses, and other hospital employees may be broader in rural settings. The question of suitable staff housing, though, is more important in rural than in urban hospitals.

A critical issue in rural hospitals is environmental sanitation, which is important to both patients and hospital staff. Have appropriate measures been taken with regard to drinking-water, the kitchen, laundry, and waste disposal? If the hospital is in an area with vector-borne endemic diseases, have adequate measures been taken to control the vectors (mosquitos, flies, etc.)?

Health centres—urban and rural

To the extent feasible, the same questions can be asked about these centres as for hospitals. The facilities and equipment available to physicians, nurses, technicians, and others should be described. What are the working hours and the arrangements for housing personnel? What is the state of environmental sanitation? The staff may include environmental sanitarians and, if so, is their office accommodation and housing as good as that of other staff members, since they are sometimes not treated equally? Is there adequate provision for staff taking their meals in rural health centres?

Transport is a special problem in many rural health centres, since it affects patient care, as well as supervision (see below), and the general mobility of staff members. The vehicles, fuel availability, and maintenance should be briefly described and assessed.

Rural health posts

These small units may be staffed by community health workers and often by assistant nurses or equivalent personnel. The clinic is frequently attached to the staff housing so that the staff is available at all times. What is the state of these buildings? Are the environmental sanitation, furniture, and other accessories adequate and reasonably well maintained? Is communication with the next higher level in the health care structure possible by telephone or radio? Are there passable roads from the nearest health centre or hospital to the rural health post, so that vehicles can travel in both directions? Many of the questions listed under hospitals are also relevant here.

Sources of information

After suitable examples of the ministry of health facilities, as discussed above, have been selected, the country review team should visit at least one of each type. Those in rural areas should be as far from the capital, or any other city, as possible. In addition to typical examples, there are often new hospitals, health centres or health posts that the ministry of health regards as models for the future. If feasible, visits should also be made to these units, as long as it is understood that they are not truly representative of the general situation.

During a visit to a hospital or health centre, discussions should first be held with the director. Every effort should then be made to have discussions with physicians, nurses, and others on the staff who are not in managerial positions, and to discover their opinions, and the working and living conditions in these establishments. (Great discretion must, of course, be exercised in such discussions.) Buildings, equipment, etc., can be observed during a tour of each institution.

Personnel functions—ministries of health

The exact functions of any category of health personnel will depend, of course, on the workplace and the post that is held. The functions of a nurse in a hospital ward are very different from those of one in an operating theatre or a rural health centre. It would be impossible to define the many functions of the numerous types of personnel working under a ministry of health, but certain common features have a bearing on the functioning of all types of personnel, and these should be examined in the review. Among these are:

(1) *Recruitment and placement.* How are physicians, nurses, and other personnel recruited? Are positions publicly announced (advertised) so that all qualified persons may apply? Is there evidence of nepotism or other inappropriate methods of selection? To what extent is the placement of an individual physician, technician, or pharmacist based on his personal wishes, as compared with the objective qualifications or requirements set by the ministry? Are there special provisions for staffing positions in rural or underserved areas or for rotation at posts considered highly desirable? The placement of physicians, because of their wide range of specialties and capabilities, requires particularly careful assessment.

(2) *Job descriptions.* In any organization, such as a ministry of health, the multiplicity of functions to be performed can lead to confusion and misunderstanding. To achieve efficient teamwork among personnel, clear and detailed job descriptions, based on task analyses, should be drawn up and applied for every health worker. Sometimes job descriptions are prepared in a personnel department and never explained to an employee. Sometimes they are available but are very brief, hopelessly out of date, or both. Sometimes there are no job descriptions,

and the individual is expected to understand from the training what he/she is expected to do. Detailed job descriptions provide a basis not only for manpower projections and educational policy (at all levels), but also for supervision, performance assessment, career development, incentive schemes, etc. While job descriptions are essential for teamwork, successful teamwork requires each person to understand both his own tasks and duties and those of the other members of the team.

Job descriptions can hardly be completely accurate. For multipurpose personnel, like physicians or professional nurses, many situations arise which cannot be anticipated. Health personnel must always use their own judgement in dealing with health problems. There are times when following rules precisely leads to poor results. Every job description, and the rules that accompany it, should therefore permit exceptions under certain circumstances. Special attention in all job descriptions should be given to relationships among the several types of health personnel who work together in health establishments.

(3) *Supervision and consultation.* In every organized health programme, some degree of supervision and consultation is required. A major problem of the private sector is that the practitioner, whether modern or traditional, is usually isolated and unsupervised. This does not mean that supervision should be autocratic and oppressive, but rather helpful, educational, and supportive. The physician, nurse or laboratory technician should be free to consult someone else when the need is felt. The referral rate and the types of cases referred are important indicators of health system operation, as is the direction of flow of patients referred and the means of transport or transfer. Good communication is required for effective supervision and consultation. Supervision, of course, should take account of job descriptions as well as provide an opportunity for continuing education, and it is important that the content as well as the frequency of supervision should be investigated.

For health personnel with limited training, such as community health workers, supervision and consultation are especially important. In fact, the success of a primary health care programme, in which a large number of the personnel involved are community health workers, may stand or fall by the adequacy and quality of supervision and consultation. Health workers trained for only a few months and paid only minimal salaries or not at all can hardly work effectively and enthusiastically without a high degree of supervision and both technical and emotional support.

(4) *Monitoring the quality of performance.* In an organization employing many health personnel, some regular procedure for monitoring the quality of performance of individual health workers is necessary. This is usually the task of a supervisor, but it depends on that person's objectivity and diligence, and ability to make observations. Explicit standards of performance may be helpful, as long as they are not applied too rigidly. To be able to observe personnel who are spread out over a large district or province requires transport and communications; in a single hospital or health centre the task is obviously easier.

Monitoring in both these situations is required in ministry of health facilities. In the absence of transport, monitoring may have to depend simply on the study of records or periodic written reports.

Sometimes performance can be monitored only by noting the grievances of patients or the criticisms of other observers. There is some value in examining complaints, but monitoring should rest on firmer grounds than this. In many organizations, periodic conferences are held in which discussions may yield insights into a health worker's knowledge, skills, and attitudes. More thorough judgement of performance usually depends on periodic visits to health workers—whether a medical specialist or an assistant nurse—and observations by the supervisor in different work settings.

Sources of information

To obtain information on these four aspects of personnel performance is not easy. To some extent, information may be gathered at the headquarters of the ministry of health, in the office responsible for staff appointments, e.g., on formal policies on the recruitment and placement of personnel; their actual implementation can be judged only by discussions with, and observations of, the many health personnel in the ministry's programmes. Formal policies on supervision and consultation may be determined in the same way, but their implementation requires more searching investigation.

Whether job profiles, or job descriptions, exist and are used is relatively easy to determine in a ministry of health, but some observations in health establishments will be necessary to learn if they are really known to all concerned and being implemented. The monitoring of quality of performance may be called for in formal policies; this is easy to describe but not so easily assessed.

Judgements as to the practical implementation of these four aspects of personnel performance in a ministry of health will depend on a combination of observations at several places. Facts and impressions may be gathered at the ministry's headquarters. Further insights will come from visits to provincial or district offices of the ministry, where several officials should be interviewed. Then, at the workplaces (hospitals, health centres, and health posts), insights can be gained into how well personnel appear to be performing their functions. If possible, a few discreet questions might be put to patients, particularly with reference to the services of community health workers.

Personnel administration—ministries of health

A final aspect of health manpower management may be the complex of policies relating to personnel administration. The exact policies, of course, will differ among the various categories of personnel, but their general character may be considered under five main headings:

(1) *Salaries and merit increases.* What are the salary scales of the major categories of personnel (physicians, both general practitioners and specialists, nurses of various grades, pharmacists, sanitarians, etc.)? How

do these salaries compare with those for equivalent work in other organizations? How do they compare with earnings in private practice in the same profession? If the average earnings of industrial workers in the country are known, how do the ministry's salaries compare with these? It is best to inquire about starting salaries and then about merit increases or salary increments over time. Are there significant increases for seniority and long service?

(2) *Promotions and career mobility.* Apart from advancement in a given position, how frequently are promotions made to higher positions? Does the ministry have a policy of promotion from within? Are the possibilities of promotion regarded as an incentive to high quality performance?

In fields such as nursing, environmental or community health work, is it possible for the highly motivated individual to undertake additional studies and thereby move up to a higher level? From the point of view of career mobility, does the ministry regard a certain number of years of experience as equivalent to academic training? Can personnel cross professional boundaries, through further study, e.g., can a dental assistant become a dentist?

(3) *Long service incentives.* Any organization will operate more efficiently if personnel who have learned to do a job well stay on for long periods of service. High rates of job turnover are wasteful. It is necessary, therefore, to determine whether the ministry of health offers incentives to staff to remain for long periods. Is there job security in the form of tenure after a certain number of years of satisfactory service? Are further incentives to satisfactory performance offered in the later years? Does employment with the ministry offer any fringe benefits, such as pensions, holidays, health care or health insurance, disability allowances, etc.? Such benefits are sometimes a feature of all employment in a country, but do they apply to employees of the ministry in the absence of a national social security programme? Are there benefits beyond the entitlements of such a social security programme?

(4) *Continuing education.* Continuing education in professional schools was discussed earlier. Does employment in the ministry of health give staff an opportunity for regular continuing education? Are physicians, nurses, pharmacists, and others free to leave their posts, while still being paid in full or in part, for certain periods, in order to undertake further studies? Are such additional studies voluntary or mandatory, or voluntary but encouraged by incentives? Is continuing education devoted entirely to technical matters? Does it include such matters as the ministry's health objectives, management, leadership strategies, etc.? Above all, is there a national policy on continuing education that ensures regular refresher courses for all categories of health personnel and are there incentives to continue lifelong on-the-job learning? Does continuing education aim at and ensure the maintenance and improvement of professional performance?

(5) *Job satisfaction.* There may be indirect indicators of job satisfaction, such as the turnover rate or the frequency of personnel

grievances. Job dissatisfaction may be reflected by personnel arriving late, taking excessive rest periods or working unenthusiastically, etc. Has a survey ever been made on this question? The results of any such survey should, of course, be studied and reported, likewise, those of any study of consumer satisfaction.

Sources of information

Most of the factual information on these personnel administration policies should be available from a personnel office, or its equivalent, at the ministry of health. Information on their implementation, and especially on job satisfaction, can be gleaned by discussions with staff members at various levels throughout the ministry. Obtaining a personal job history from some of the older or middle-aged personnel in different disciplines (during visits to various health institutions at different levels) may give a great deal of insight into the matter.

Social security organizations

In many countries social security organizations operate a comprehensive health service for certain population groups. They are not funded from the regular government budget and their funds may be used to purchase health services from private providers (this is usual in the developed countries) or they may be used to conduct health programmes directly with their own personnel and facilities (usually the pattern in developing countries). In the latter case, the social security organization may be almost equivalent to a second and autonomous ministry of health, and is sometimes even larger (in terms of its expenditure) than the ministry.

When a social security organization operates its own health services in a country, its health manpower development policies should also be studied in a country review, essentially along the same lines as those of the ministry of health. Information should be gathered on the conditions of work, the functions of personnel, and personnel management policies for all categories of manpower involved. If time is limited, the requisite information should be collected for physicians (including various specialists), nurses (several grades), technicians, and pharmacists. Also of special interest in social security organizations are the various health administrators. On the other hand, sanitarians and community health workers are not likely to be working for such organizations.

Among the facilities run by social security organizations, general hospitals and large polyclinics (not health centres) for ambulatory specialist services figure prominently. These are mainly in the larger cities, and there will rarely be any rural health posts. Visits should be made to the hospitals and polyclinics, as well as to the organization's headquarters.

Because of their independent funding—mainly from the more affluent sectors of a nation (industry, commerce, civil service, etc.)—social security organizations often pay higher salaries for a given type of job than the ministries of health. Their facilities are often newer and better designed and constructed. Under these circumstances, social security organizations may be more successful in recruiting and retaining well qualified personnel than ministries of health or other agencies. A certain rivalry often develops between the various agencies, and this may induce ministries to improve their salaries and working conditions.

Social security organizations have gradually been expanding their population coverage in many countries and have therefore had more jobs to offer to health personnel. In some countries, the creation of these new jobs has had a direct influence on the output of physicians. Nurses, technicians, and other health personnel are sometimes even trained by the social security organizations.

Sources of information

Information on all the aspects of manpower management noted above can be collected from the organizations' headquarters (almost always in the national capital) and at a sample of the hospitals and polyclinics operated by them. Discussions should be held, if possible, with high-level administrators and specifically with those responsible for personnel administration. At the patient-care facilities, interviews should be sought with the directors and with a few staff members of various disciplines. If possible, patients might be asked a few discreet questions.

Most social security organizations issue annual reports, and sometimes other bulletins, of which copies should be obtained.

An analysis of the health manpower development policies of social security organizations that simply purchase services from private physicians and existing hospitals (private or public) will not be necessary. These organizations are essentially financial support agencies, and should be described in the analysis of the overall national health system infrastructure. Details of the health manpower utilized should be incorporated in the analysis of the private sector (see below).

Other ministries with health functions

In the discussion of the national health system infrastructure, reference was made to several other authorities having health-related functions. Some of these, such as ministries of finance or planning authorities, will not provide health services directly. They do not need to be analysed, therefore, though their place in the overall health system—especially their influence on health manpower plans and budgets—should be recognized. The ministry of labour employs essentially supervisory personnel, whose task is to inspect factories and enforce safety and health regulations at workplaces, but not to provide any health services. (This ministry may, of course, greatly influence health manpower management policies and practices).

On the other hand, several other ministries or agencies are directly involved in the delivery of health services to certain population groups and therefore employ health personnel of various types. Ministries of education may operate teaching hospitals and provide health services to schoolchildren. Ministries of agriculture may operate clinics or health centres in selected rural communities. Ministries of defence usually operate comprehensive health programmes for military personnel. Ministries of the interior may operate special hospitals and other health units for aboriginal populations; they also supervise general health services in many cities that are outside the jurisdiction of the ministry of health. Public corporations often provide health care programmes for their employees.

In all these different agencies, varying numbers of health personnel are utilized to provide direct health care. Time will probably not permit a detailed analysis of their conditions of work, their functions, and their personnel administration policies, but the highlights of those features of manpower management should be recorded.

Sources of information

In the country review, the different government agencies discussed above will have been visited as part of the collection of information on the overall health system infrastructure. At most of these visits, the highlights of health manpower management can probably be gathered by asking certain questions.

When important facilities are operated by these agencies—such as military or veterans' hospitals, facilities for aboriginal populations, university teaching hospitals, or the health facility of a large parastatal oil corporation—it would be advisable to visit them. Their policies on health manpower management may differ appreciably from those of the ministry of health or a social security organization, and such differences should be reported.

Voluntary health agencies

Many voluntary health agencies only engage in health promotion or contribute to the financing of certain types of research or education. These will have been identified in the analysis of the national health system infrastructure.

Where voluntary health agencies actually provide health services, the country review should gather information on the way they manage their manpower. Important agencies of this type include religious medical missions, family planning societies, and those concerned with certain diseases. In countries with medical missions, there are typically numerous hospitals and clinics, and visits should be made to at least one or two of them. By discussions and observations, the highlights of the conditions of work, personnel functions, and personnel administration policies may be determined. For obvious reasons, the level of motivation and dedication of personnel working in voluntary agencies (sometimes for very low or even no pay at all) may be exceptionally high. Even though most medical missions are sponsored by foreign churches, the majority of their personnel may be local citizens. Information about the other types of voluntary health agency can be gathered simply through discussions with each agency director.

Sources of information

Information on health manpower management in voluntary health agencies can be collected through discussions with agency directors and visits to church missions providing health services.

Enterprises providing health care to employees

In developed countries, the number of privately owned industrial enterprises providing health care to employees is usually very large, but they are numerous even in developing countries. It will be necessary, therefore, to select a few places to visit, most simply by choosing the largest programme known to exist in industry, agriculture, mining, or oil extraction.

At each of these establishments, a medical director is usually responsible for health services for employees, and often for their families. Through discussions with the director, and observations on the health facilities (frequently including a small hospital), the essential features of manpower management can be investigated—conditions of work, personnel functions, and personnel administration policies. Some of these enterprises, especially those owned by foreign corporations, are very wealthy and operate high quality services. They pay exceptionally high salaries and attract well trained personnel. A profit-sharing scheme is sometimes operated to enhance the motivation of supervisors, workers, or both.

Sources of information

Information on health manpower management may be gathered by visits to selected enterprises, observations of health facilities, and discussions with the medical directors of the employee health-care programmes.

The private sector

The private sector is quite large in a great number of both developed and developing countries. In the latter, even when most physicians work in the government health services, they may also engage in private practice after working hours. The principal components of the private sector to be investigated are medical and dental practice, and pharmacies.

Most private health care is not provided within the framework of any organization, except for the small fraction provided by group-practice clinics. If any such private medical groups exist in a country, it would be worthwhile visiting at least one of them—probably the largest one. It would be interesting to contrast the features of manpower management found with those in a clinic or health centre operated by the ministry of health.

Insofar as medicine, dentistry, and pharmacy are not practised in an organized setting, the three features of manpower management (conditions of work, personnel functions, personnel administration) cannot be so readily investigated. If visits are made to a small sample of practices—such as two or three of each type—perhaps some judgements can be made on conditions of work. The equipment (medical and dental) can be observed, along with the office space and furniture. The hours of work can also be noted.

If personnel other than the physician, dentist, or pharmacist in question are present, they can be asked about their functions. With regard to consultation and referral, the physician and dentist can be asked what they do about a patient whose condition is beyond their ability to handle. It may be assumed that supervision does not exist in private practice. However, in some countries, private pharmacies may be subject to some type of public inspection.

Determining the general quality of performance in any type of private practice is extremely difficult. Perhaps some general impressions can be gathered from the appearance of the office. In a medical office, is there an examining table that seems to be used very often? If patient records can be seen, do they show any evidence of medical histories, physical examinations, laboratory findings, or even the patient's diagnosis and the treatment given? In a dental office, is it clean and are the dental instruments in a proper condition? In a pharmacy, does the stock of drugs appear to be well organized?

Most of the usual questions regarding personnel administration will not be relevant. The practitioner may be asked, however, whether he/she has participated in any continuing education/learning in the last year or two and, if so, of what type. It would be most useful, in analysing the manpower management aspects of the private sector, to estimate the practitioner's net earnings. This may be a sensitive question which cannot be asked directly. The physician, dentist, or pharmacist might instead be asked, "What are the approximate average earnings of your fellow practitioners in this city?" If this fails to elicit a response, try, "What would you estimate the *range* of net incomes to be among other practitioners in this city?" Information on approximate private earnings might be available at the headquarters of the medical, dental, and pharmacy associations, if they exist.

Data on private professional earnings are important in that they put into perspective the salaries paid in the public sector. Private earnings are usually much higher, and this information can shed light on the problems of recruitment (especially of physicians and dentists) for the ministry of health or other organized services.

Sources of information

As indicated, information on manpower utilization in the private health care sector requires visits to a sample of private physicians, dentists, and pharmacists. In private practice offices, many observations can be made on equipment, records, and other features. Discreet questioning can yield insights into referral patterns and professional earnings, etc.

General commentary

In considering the management of health manpower in a country, several broad questions may be framed, to which the initial answers would most probably be impressionistic, though specific items of empirical evidence may perhaps be marshalled in support of some of the general impressions. The questions would include the following:

(1) Are there obvious shortages or surpluses of certain categories of health manpower, in relation to national health needs and, if so, in which categories?
(2) Broadly speaking, is the "mix" and distribution of various types of health manpower appropriate, or are there relatively too few of certain types and too many of other types?
(3) Within the health services of the ministry of health, are personnel assigned to places where they are most needed? How does their distribution compare with that in other organized programmes?
(4) Are health personnel distributed among different organized health programmes and specialties in reasonable accordance with their relative requirements?
(5) Do salary scales and working conditions offer adequate incentives to work in certain settings necessary for the overall welfare of the population? Specifically, are working and living conditions conducive to service in rural areas and in underprivileged urban areas?
(6) How can the general morale and performance of health personnel in the overall programme of the ministry of health and in other organized health programmes be characterized?
(7) In the ministry of health hospitals, are the responsibilities distributed efficiently, so that tasks are performed by the least expensive personnel, i.e., those with the least elaborate training, capable of doing them properly? By the same criterion, what is the efficiency of personnel utilization in hospitals sponsored by other agencies?
(8) How efficiently are personnel utilized in ministry of health centres and in facilities for ambulatory care of other agencies?

(9) Is there a routine channel for information flow on manpower management and the monitoring of effectiveness and motivation in various programmes, so that data on needs for changes in planning, production, and utilization of specified types of personnel are fed back promptly? Are adjustments made accordingly?

(10) Is there reasonable coordination in the management of health personnel from different agencies working in the same area?

(11) If government and private health services are compared as a whole, how may the quality of manpower performance in the two sectors be characterized?

(12) Of the various health programmes of the ministry of health and other agencies, which one could be characterized as most relevant to the needs of the nation and which the least relevant?

(13) If the broadest possible view is taken of the management of a country's health manpower, is the picture consistent with the country's strategies for achieving the target of health for all through primary health care? Are the organized health programmes oriented towards equity and social justice, in responding to the health needs of the population?

7. Trends and recommendations

Having collected the data and completed the analyses called for in the previous chapters, the country review team should be in a position to make observations on general trends in all three components of the health manpower development process. On the basis of the problems and imbalances identified, the team should also be able to recommend specific improvements, which are, after all, the aim of the whole action-oriented country review. They may be based on a comparison of the situation found in a country with the requirements listed by the WHO Expert Committee in 1985.[1] The action recommended would be aimed at closing the gap between the actual situation and what is necessary in order to attain health for all. The questions that the team might ask are listed below.

Planning

What trends can be identified in the mechanisms (and, in particular, the multisectoral coordinating mechanisms) and methods of health manpower policy making and planning? Are changes contemplated in the formulation of national standards and indicators used in setting goals for the qualitative and quantitative planning of health manpower? Is qualitative planning considered as a basis for quantitative planning?

How far are health manpower plans integrated with national health plans and through them with socioeconomic plans? Is there a trend to adjust the manpower plans to meet the requirements of national health-for-all strategies? How well are the manpower plans related to the national economic realities and to what extent are they implemented?

What are the major trends in the national supplies and population ratios of the principal categories of health manpower? Is there evidence, for example, of excessively rapid increases in the numbers of certain types—such as physicians—and of inadequate numbers of others types—such as nurses?

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[1] WHO Technical Report Series, No. 717, 1985 (*Health manpower requirements for the achievement of health for all by the year 2000 through primary health care*: Report of a WHO Expert Committee).

Is research on the types and numbers of health personnel required being carried out by universities or government agencies any more frequently now than in the past? Are research findings being used by decision-makers? Is the flow of information on health manpower production and utilization more regular or more effective than in previous years? How does the information influence important decisions?

In the light of the problems identified in the country review, and the trends that can be observed, what recommendations may be made to improve qualitative and quantitative health manpower planning, and to increase the relevance of plans to the health-for-all strategies?

Production

What trends may be identified in the output of physicians generally, and in each of the main specialties? Is there evidence of any increased attention in medical education to the concept of health for all through primary health care, and to principles of management, and an orientation towards community problems? What trends may be observed in specialized postgraduate training and in continuing education?

What are the qualitative and quantitative trends in the production of pharmacists and pharmacy assistants? Is the changed role of pharmacists in the health system reflected in their educational programmes?

What trends can be observed in the output of dentists in relation to various types of auxiliary dental personnel?

Is the education of nurses and nurse auxiliaries changing in response to the changing definitions of the scope of nursing practice? What are the quantitative trends in the production of various grades of nurse?

What is the trend in the output of community health workers? Can any trends be observed in the training of these health workers for specific tasks, as defined in job descriptions, and in the content of their theoretical and, especially, practical training? Have the facilities where they are trained been changing in number, location, or general character?

What trends are evident in the training of laboratory or other diagnostic technicians?

Is the output of environmental health personnel keeping pace with the needs and demands in this field? What changes are taking place in the curriculum for training various grades of sanitarian?

What are the trends in the training of personnel for health administration and leadership? Is there any increase in the number of short courses or workshops on administration or management for health personnel already at work?

Are there any trends in the training or output of other types of health personnel?

Is overall manpower production generally consistent with health manpower plans, qualitatively and quantitatively, and in accordance with national health-for-all strategies?

In view of the problems identified in the country review, and the trends observed, what recommendations can be made to improve health manpower production, qualitatively and quantitatively? Can this process be made to reflect more significantly manpower plans to produce the types and numbers of personnel with the competences required by a health system based on the primary health care approach?

Management

Are there any noticeable trends in the conditions of work and life of various types of health personnel in the programmes of the ministry of health? What are the trends in the improvement of working conditions in hospitals, as compared with health centres or other facilities for ambulatory care?

What trends can be identified in the way the ministries of health use job descriptions? How do they organize the supervision of personnel, especially the briefly trained community health workers? Are procedures for monitoring the quality of work being developed and applied, and are there mechanisms and procedures for feedback to the planning, production, and management of personnel?

What are the trends in the improvement of working and living conditions and in the use of job descriptions in other agencies?

In personnel administration, is there any trend towards improved incentive schemes in the ministry of health and, if so, for which types of personnel? What is the trend with respect to job turnover in the ministry of health and in other major organized health programmes? Are there greater incentives for long service and for better job performance? Is continuing education being provided at definite intervals and, if so, by which agencies and for what types of personnel? Is there any trend to reorient continuing education towards improved job performance, and to test whether there has been any improvement?

Have personnel management trends in other agencies been identified?

In the light of the problems and trends identified in the management of health personnel, what recommendations can be made to improve manpower management in the ministry of health and in other agencies in order to increase job effectiveness and efficiency in health systems based on the primary health care approach?

International collaboration

In concluding the country review of health manpower development, the review team might want to consider whether further collaboration from multi- and bilateral agencies, and especially WHO, would help to solve any of the problems identified. Such collaboration might provide a source of technical expertise in any aspect of health manpower planning, production, or management. Consultants with international experience can help to acquaint a country with the experiences gained and the lessons learnt by other countries faced with similar problems.

WHO might be currently working in the country on some aspect of health manpower development and/or some other aspects of the national health system. Such projects should be reported, along with any assessment of what they may be accomplishing. Conceivably, a WHO representative might serve on the review team, if this is feasible and the national authorities consider it necessary.

In addition, UNICEF, the World Bank, UNDP, and other United Nations agencies, as well as bilateral, intergovernmental, and non-governmental bodies, may be working in the country on some aspect of the health system and, specifically, on health manpower development. Any such work must be described and taken fully into account in the formulation of any recommendations for international collaboration.

If there are ways in which WHO collaboration might be more helpful, the regional office concerned should be informed accordingly. To the extent possible, WHO is prepared to collaborate with all countries in making their health manpower development activities more effective and efficient in the implementation of health-for-all strategies.

Plan of action

When all the problems and trends have been identified and recommendations made with respect to health manpower planning, production, and management, a consolidated plan of action should be drawn up. This would ideally be a task for a national health council or, in its absence, the ministry of health. Perhaps the need for a plan of action may justify the formation of a new *ad hoc* committee on health manpower development, which should include representatives of planning bodies, training institutions and agencies providing health services. Such an *ad hoc* committee warrants support from the highest level, and should maintain close working relationships with planning agencies, the ministry of health, universities, professional associations, and other interested groups.

A sound plan of action should indicate clearly the tasks to be carried out in order to solve the problems identified. It should establish the priorities and the strategies to be applied. Target dates for the different actions should be set, with an indication of the person(s) and/or institution(s), responsible for each step. The plan of action should be carefully reviewed and discussed by all members of the *ad hoc* committee before it is finalized. Existing national standards or guidelines for health manpower development should be assembled beforehand, even if they are subject to later modification or improvement.

In another five years or so, the main features of the review should be repeated. What has been accomplished and what remains to be done? The value of the whole review can only be measured by the results obtained in the implementation of recommendations intended to improve and speed up the process of achieving health for all.

Annexes

The four country reviews of health manpower development included here in alphabetical order demonstrate some of the possible outcomes of such reviews, with special emphasis on the conclusions and recommendations. Further reviews may be obtained on request from the World Health Organization, Avenue Appia, 1211 Geneva 27, Switzerland.

Annex 1

Health manpower development in the Islamic Republic of Iran

This country review of health manpower development was carried out in the Islamic Republic of Iran on 2–7 February 1985. The time available for this study was unusually short (four working days only), and the protocol had therefore to be streamlined and applied with great flexibility, with special regard to the fact that the report had to serve as an input to a joint Government/WHO programme review.

General background

The Islamic Republic of Iran lies between Turkey and Iraq on the west, Afghanistan and Pakistan on the east, the USSR on the north, and the Persian (Arabian) Gulf on the south. It occupies 1 648 000 km², and is divided by mountain ranges into a northern region, a central plateau, and a southern region.

The population, according to the census of 1976, was 33 600 000 and was estimated to be about 43 million in 1984. About 54 % of the population live in cities, one-fifth of the total in the metropolitan area of Tehran; the remainder live in thinly settled rural areas. Some 41 % of the population are children under 15 years of age. Families are relatively large, with an average of 5.0 members.

Production and export of oil, accounted for a relatively high GNP per capita of $2160 in 1977. The rural population is engaged mainly in subsistence agriculture.

Current literacy levels are not known, but in 1976 the rate of literacy for men was 67 % in cities and 27 % in rural areas. For women, literacy rates were 43 % in cities and 7 % in rural areas. Education has been greatly expanded in recent times, however, especially as regards the eight years of primary schooling.

Administratively, there are 24 provinces, each province being divided into districts, and these in turn into townships or rural communities.

Life expectancy at birth was estimated to be 55 years in 1984 and the infant mortality rate 106 per 1000 live births. The birth rate was 44 per 1000 population and the rate of population growth 3.2 % per year.

The national health system

The major components of the national health system infrastructure of the Islamic Republic of Iran are directed by the Ministry of Health. There is also a large social security organization covering about 3 million employees (non-agricultural) and their dependants; it operates its own hospitals and polyclinics. Several voluntary health agencies, associated mainly with religious groups, also render services to crippled children, persons with tuberculosis, and others. There is also a large private medical sector, especially in the cities, but its size is not known.

In the Ministry, there are six under-secretaries in charge of large departments (public health, curative services, etc.), including one for education and research. Directly under the minister is the Regional Organization of Health of the Provinces. Each province has a Provincial Health Council, with an Executive Board and an Executive Director. Curative and preventive health services have separate administrative structures.

Under the Provincial Health Councils, there are Directors of the Health Network of the component districts. The District Health Network encompasses a district health centre, rural health centres, and health houses. The district hospital is administered separately.

The Islamic Republic of Iran has a national health policy which is highly relevant to the long-term objective of attaining health for all by the year 2000. The corresponding strategies and health development programmes are in line with the primary health care approach, which is generally accepted as the cornerstone for the attainment of health for all.

The health services of the country are planned on the basis of the primary health care approach. It is proposed to provide integrated (promotive, preventive, curative and rehabilitative) health care through a logically constructed network of health institutions. In rural areas, where about 46 % of the population live, there are "health houses", each serving 1000–2000 population, which are supervised by rural health centres, covering a population of 5000–15 000. For urban populations, the first-contact level of health care is provided by urban health centres each serving about 20 000 people. Rural and urban health centres are supervised by district centres and the latter by provincial health centres. The existing facilities and future projections are as follows:

	1983	*1985*	*1987*	*2002*
Health houses	3 259	3 598	5 600	19 000
Rural health centres	1 697	1 881	3 550	7 500
Urban health centres	986	1 543		
District health centres	124	124	160	200
Provincial health centres	14	14	24	27

The district and provincial hospitals serve as referral points, but do not participate in the supervision process.

Health manpower development

To staff all the health facilities that already exist, and especially those planned for the period up to the year 2000, many more personnel will have to be trained. Plans are being made for this, as explained below.

Health manpower planning

The health manpower policy and strategy are stated to be based on the concept of health for all. Health manpower plans are an integral part of overall health plans, both long-term and medium-term. These plans make rather detailed quantitative projections, based to some extent on job descriptions.

Currently, at least 31 categories of health personnel are being trained, and further types may be forthcoming. Plans have been formulated for some, though not all, of these categories. Doctors, for example, are currently available at a ratio of 0.37 per 1000 people; the goal laid down is 1.0 per 1000. Nurses currently number 9.7 per 25 hospital beds, and the goal is 20 per 25 hospital beds. (For doctors, a ratio of 1.0 per 1000 would mean an estimated total of 74000 by the year 2002, although another projection calls for 61000).

In the Master Plan of Health issued by the Joint Planning Council of the Ministry of Health in 1982, the national inventory of health manpower is reported, in round numbers as follows:

Physicians	15000
Dentists	2000
Pharmacists	3000
Pharmacy assistants	1700
Environmental health technicians	8000
Nurses and nurse aides	23000
Midwives and assistant midwives	1700
Auxiliaries for primary health care	3000

Plans call for considerable increases in all these types of personnel. The auxiliaries, for example, would be expected to number 33000 by the year 2002. Each health house would be staffed by two such auxiliaries—one female for maternal and child health and family planning, and one male for environmental sanitation and communicable diseases. The health house is supposed to carry out all the eight essential functions of primary health care.[1]

The health centres, urban and rural, are now staffed in principle by at least one physician plus nurses and midwives, as well as nurse and midwife auxiliaries. It is planned that, in the future, in addition to the above there will also be one technician in oral health, plus other technicians in family health, disease control, environmental health, laboratory work, and pharmacy, giving a minimum of seven professionals.

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[1] WHO/UNICEF. *Primary health care. Report of the international conference on primary health care, Alma-Ata, USSR, 6–12 September 1978.* Geneva, World Health Organization, 1978.

Currently, the staff of the 3424 existing health centres consists of 1475 physicians (of whom 255 are Iranians), 154 graduate nurses, 6734 practical nurses, 449 midwives and nurse midwives, and their auxiliaries. In the 3598 health houses now in existence, there is a total of 5200 auxiliaries (presumably male and female).

Of the urban population (settlements of 5000 people or more), about 85 % are now covered by the services of health centres or health houses as described above. Of the rural population in the 70 000 villages, only 45 % are within 1 hour's travel time of a health centre or health house. Where coverage is not otherwise available, it is provided by mobile immunization and communicable disease control teams, which also supervise those health houses not yet linked to a health centre. In one rural district visited, with 500 000–600 000 population, there were 15 rural health centres plus 10 under construction (and a need for 60); there were 71 health houses plus 8 under construction (and a need for 300).

Since the last Joint Programme Review in August 1983, the Islamic Republic of Iran has evidently made a determined effort to implement its health-for-all strategy in spite of very serious economic difficulties. The figures quoted above show that the construction and/or establishment of new health houses and health centres was continuing although numbers quite clearly fell short of projections. For example, there seem to be about 600 fewer health houses than are necessary for early 1985 if the 1987 target is to be achieved. The reason for this is clearly economic, although at the same time new medical schools are being built so that it also seems to be a question of priorities.

If the plans are examined in greater detail, the striking fact emerges that they do not take into account the natural rate of attrition (from death, retirement, etc.). The other noteworthy fact is that planning for nurses relates exclusively to hospitals (20 per 25 hospital beds) and none at all are foreseen for health centres. It is also striking that, for example, in 2002, only 33 000 auxiliaries are planned for 19 000 health houses, each of which should have two auxiliaries. Even this figure took no account of attrition, though this category has had a 30 % attrition rate during the past ten years and has a current annual training intake of 1200 (but again no account was taken of a 10 % drop-out rate during the 2-year training period). This means that, with the present intake and all foreseeable attrition taken into account, in 2002 there will be about 15 000 auxiliaries[1] available for the planned 19 000 health houses. Even if the intake is doubled (2400 per year), only about 25 000 auxiliaries will be available in 2002.

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[1] All the calculations here were made for illustrative purposes only.

As regards physicians, the intake in 1984–85 was 2145, but the number of graduates in 1984 was only 592, and will be 800 per year in 1985 and 1986. If the country wants 74 000 physicians in 2002, then roughly about 7000 medical students ought to be admitted annually from now on to reach the target, taking into account the normal drop-out rates. Of course, drop-out rates for different categories of health workers in the Islamic Republic of Iran are yet to be defined.

The training of family health and disease control technicians, two new categories of health worker who may eventually replace nurses in health centres, started only in autumn 1984 with an intake of 1000 for the two groups. However, the plan does not seem to foresee the use of nurses at health centres during the period when the new technicians are not yet available in sufficient numbers.

The plans mentioned here were all prepared before 1983 when the economic situation was much better than it is now. For this reason a thorough revision will be necessary, but this has not yet been started.[1]

As to the qualitative side of planning, it seems that there are detailed job descriptions for most, if not all, categories of health personnel but only very few of them, if any, are based on task analyses. The others are based on the opinions and judgement of experts.

Health manpower training

The details of training programmes for the 31 categories of health personnel were collected by the person carrying out the review. One of the categories is "community health workers" who are actually called "auxiliaries". There are also auxiliaries for many other personnel categories, but these are trained on the job, except for the auxiliary nurses and midwives, who are trained in 4- to 6-month courses after 8 years of basic schooling. It should be noted that the admission policy has been changed in all programmes so as to conform with the declared principle of the national health manpower policy—namely emphasis on the selection of local nationals for training.

Curricula for all health training programmes have also been revised since the Revolution in accordance with Islamic values and community needs. This seems to lead mainly to the extension of training programmes to include general (non-health) subjects. There is no evidence, however, that this revision has, as it was supposed to, promoted integration of training and health services delivery with emphasis on the training of those personnel required by the country health network.

The medical and nurse training programmes seem to be highly theoretical and entirely discipline-based and hospital-oriented. In the 7-year medical curriculum, 75% of the first two years is devoted to lectures, as is 50% of the third year. Only in the later clinical years does lecture time drop to 25%. This pattern is the same in all medical schools.

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[1] Because of the shortage of time it was not possible to talk to the planning authority either in the Ministry of Health or in the Plan and Budget Organization.

In nursing, lectures absorb 55% of the associate degree curriculum (2.5 years after 12th grade). The BSc degree in nursing requires 2 years of study after the associate degree, and the MSc 2–3 years after the BSc. Even the nurse-practitioner curriculum (3 years after 8th grade education or 1 year after 12th grade) includes 43% of lectures.

The medical school curriculum is scheduled to include a 2-month field training period in an urban health centre, but this has not yet been started. A lecture course on public health is given in the first 2 years, and later the students undertake 6 weeks of field work, but the objectives are not clear. In the clinical internship period, 10% of the time is spent in outpatient clinics. Even when the full field training becomes operational, the overall programme will remain largely hospital-bed oriented. The same applies to the nursing training programmes. The academic degree courses contain only a few brief visits to health centres. Even in the training of practical nurses (who are also expected to work in health centres), the time spent in health centres seems to be no more than 10% of the total.

The training of male and female auxiliaries to staff the health houses—genuine community health workers—is much more practice-oriented. These students spend 71% of their study time in supervised field training in demonstration health houses, and less than 10% in attending lectures.

There are three new training programmes for personnel for health centres—those for technicians for oral health, family health, and disease control. Each requires 2.5 years after secondary school (12th grade). These students, however, will visit rural health centres only for 10% of the time. In the training of oral technicians, only 35% of the time is devoted to lectures, but the figure rises to 60% for the other two types of technician.

Training in management principles, including methods of supervision, does not seem to be included in the training of any health personnel. The training of teachers for certain personnel (e.g., nurses and technicians) seems to be well organized. For other schools, such as medical and public health graduate schools, however, teacher training is weak or lacking.

Teaching/learning material seems to be adequate in all types of health school of the Islamic Republic of Iran.

Graduates do not seem to be followed up in any of the schools. In the three new technician training programmes, however, it is intended to carry out such follow-up studies.

Health manpower management

Maldistribution of health personnel is a worldwide phenomenon found also in the Islamic Republic of Iran. Doctors and nurses tend to congregate in the big cities and especially in Tehran. Though there are financial incentives to attract personnel to rural areas, they do not seem to be sufficient, and there are also housing difficulties and other problems with living and working conditions.

Doctors and other health personnel are obliged to work for 5 years after graduation in government service, wherever the authorities may decide, but because of the war, 2 years of this is spent in military service, 1 year in the Ministry of Health, and 2 years in any town without a medical school. However, of the 1500 physicians now performing the 1 year's obligatory Ministry service, there were very few indeed in a rural health centre (women and those invited by a university to work there are exempt from this obligatory service). For those serving their 1 year, no housing is provided.

There are obviously serious problems in getting health personnel to work in rural areas. In addition, continuing education and supervision do not always seem adequate, and thus staff in rural areas, especially in remote places, may feel quite isolated.

Continuing education for health-house personnel seems to have been very carefully worked out: there are weekly visits by supervisors, 1 day per month in the health centre, and 1–2 weeks per year at a refresher course. However, the whole system seems to need reinforcement. Even in the rural health-house visited, which was very near a city, the auxiliary who had finished her studies 7 years previously had not taken a refresher course at all, nor had her colleague, who had finished his studies 5 years ago. Continuing education for all categories of health worker needs to be strengthened, or in some cases simply started.

The career prospects for some personnel categories are commendably well assured. There is a real career structure for nurses, and even for health-house auxiliaries, while the three new types of health technician start out with clear career prospects (e.g., after 5 years' work the oral health technician who passes an examination can attend dentistry school for 3 years and become a fully qualified dentist). Similar career prospects exist for public health personnel, but for other categories are yet to be worked out.

Coordination

There are several councils and high councils which could ensure the smooth integration of health systems and manpower development, although not all of them are active (e.g., the Multisectoral National Health Council). On the other hand, the High Council for Policy Making in Health, Curative Affairs and Medical Education, is very active. It includes the Ministers of Health, Culture, and Higher Education and members of the Cabinet who happen to be physicians, two physician members of the Majlis, and two physician delegates of the Prime Minister.

Conclusions

The Islamic Republic of Iran has a clearly stated health policy and long-term strategy oriented to the goal of health for all through primary health care. It has designed a national health system using this approach—perfectly appropriate to Iranian conditions. The 1983–87 Plan envisages great steps towards improving the health system. Due to current economic constraints, however, implementation of the plans, including those for health manpower, has been difficult.

The weak health coverage, especially in rural areas, is due partly to the shortage and maldistribution of personnel. This problem could perhaps be solved by:

(*a*) deciding which type of health worker should staff the rural health centres until the new types of technician can take over. This might be the practical nurse, whose training could be thoroughly reoriented so as to focus on primary health care and rural health centres, with emphasis on methods of management;

(*b*) speeding up the training of the new family health and disease control technicians (perhaps also making the two types of training more uniform) and, as for practical nurses, orienting them to primary health care and rural health centres;

(*c*) accelerating considerably the training of auxiliaries for health-houses by reducing its duration to 1 year (with continuing education), increasing the training capacity by decentralization to the district level and to health centres and, if there are financial constraints, considering reducing expenditures on educating physicians (who seldom settle in rural areas) and increasing those on the auxiliaries needed to staff the health houses that are planned.

Another possibility, complementary to those listed above, would be to temporarily increase the population to be served by a health centre, and reduce the staffing norms. For example, each health-house might have one female community health worker, while the male health worker served two health houses. Other options are possible, of course, but decisions are needed soon.

Health manpower planning

The health manpower plans, prepared in the early 1980s, seem out of date now. Even in the more prosperous period in which they were prepared, they did not seem well matched to the existing and planned training capacity or the overall health system plans. In addition, they did not take account of natural attrition in training or at work. These manpower plans, therefore, should realistically take account of the available budget, the training capacity of schools, the attrition of students and health workers, and the needs of overall health system development.

Qualitative manpower plans, including job profiles based on task analyses, however approximate, and further adjusted to the primary health care approach, should be the basis of quantitative plans, training programmes, examinations, supervision, quality assurance, career development and incentive schemes. They must be worked out for those categories where they are still lacking.

While the qualitative and quantitative health manpower plans are being revised, it may also be appropriate to revise the existing number of categories of health worker. Thus the need for nurse practitioners *and* associate degree nurses might be questioned. Could they not be replaced by a single category, able to work equally well in health centres *and* hospitals, reducing somewhat the number of nurses with university degrees?

Health manpower training

Based on the revised job profiles, the objectives and curricula of the different training programmes should be reviewed, in order to reorient them to primary health care. For instance, the medical school programme, in addition to being long (7 years), seems to be in serious need of revision in the light of the primary health care approach, as does the nursing programme at all levels, including the post-basic courses. At the same time, these and other programmes need to be made more practical and less theoretical. The following might be considered for all training programmes:

—increasing polyvalency;
—introducing multiprofessional (team) teaching/learning;
—developing problem-solving capacity (problem-based learning);
—promoting student learning (by putting students in *active* learning situations instead of obliging them to be passive listeners in a lecture hall), i.e., drastically reducing lecturing;
—maximizing opportunities for students to practise under supervision at places where they will be later expected to work and also to become familiar with other levels of health care (community-based education);
—developing self-learning habits;
—developing a commitment to working where they are needed in a health system based on the primary health care approach.

Such programmes exist in other countries, and several of them were initiated earlier in the Islamic Republic of Iran. It would be advisable to consider educational innovations in the above directions in newly established institutions. In existing institutions, innovations might take the form of experimental, parallel tracks, using the experience already gained in the country and elsewhere.

There seems to be a need for those health workers who will be in managerial/supervisory positions (nurse practitioners, physicians, and others) to learn management skills (role-playing, simulation exercises, supervised practice, etc.). Similarly, since nearly all health workers may find themselves in a situation where they will have to teach others, they should acquire the necessary background in educational principles and practices. The Shiraz Teacher Training Centre and other similar centres may be used to prepare teachers for other teacher training units. The present teacher training courses, which usually only train in subject matter, need to be extended along these lines.

Health manpower management

To increase the efficiency and effectiveness of health personnel at all levels, and to improve their geographical distribution, certain management measures seem necessary. Some of these may appear costly, but the wastage of expensively trained manpower costs even more. Such measures might include:

(*a*) introduction of further financial and social incentives for service in rural areas;
(*b*) provision of staff housing at rural posts, with mobilization of community initiative (local recruitment alone does not solve the problem, although it helps);
(*c*) developing a national system of regular continuing education for all types of health personnel, especially in rural areas, in order to improve the quality of performance;
(*d*) creation of a career structure for the few manpower categories that do not have one;
(*e*) offering training in leadership and management, possibly at the University of Tehran School of Public Health; and
(*f*) strengthening supervision at all levels, using standard check-lists based on job profiles.

As part of career development, a residency programme in general practice, leading to qualification as a specialist, may be needed.

While the Government is clearly committed to the policy and strategy of health for all through primary health care, in practice there is strong reliance on hospital-based physicians. They still seem to be regarded as the hub of the health system, although health coverage in rural areas relies heavily on other personnel. Some nursing leaders seem strongly biased towards highly trained professional nurses and hospital-based training programmes. It might be useful to hold workshops for medical and nursing leaders—involving the Iranian medical and nursing associations—where the implications of the health-for-all and primary health care policy and strategy could be fully discussed.

There seems to be a need to redevelop health manpower research (as part of health systems research) as a sound basis for decisions on health manpower development; there is no other way of finding out what happens to the graduates from different programmes, their career choices, their drop-out rates, how well they were trained for the tasks they must actually perform, etc. A simple follow-up scheme could be established and serve as a basis for a much needed health manpower information sub-system; this would make it easier to monitor health manpower performance, quality assurance, and the further improvement of training programmes. Such health manpower research, including the economic aspects, might also be conducted in the School of Public Health (probably in the Department of Public Health Practice).

Coordination

The different components of the health manpower development process—planning, training, and utilization—are under different authorities within the Ministry of Health. Manpower utilization is also the concern of the State Organization for Administrative and Employment Affairs. The activities of these bodies would seem to require coordination, which might well be achieved by establishing a subcommittee under the High Council for Policy Making in Health Curative Affairs and Medical Education. Such coordination could link the whole manpower development process with national health system development. The School of Public Health (possibly together with the Departments of Social Medicine of the medical schools and other bodies) might conduct the research necessary to prepare decision alternatives and to monitor their implementation and effects. Such arrangements would constitute a type of National Health Development Network.

Priorities

The order of priority of the tasks to be undertaken to solve the numerous health manpower problems will naturally be established by the competent authorities. An appropriate order might be:

—to review the manpower plans on the basis of the revised health plans and economic realities, and to prepare *realistic* manpower plans;
—to prepare the plans for adjusting the training system (number of categories, admission capacity, etc.) to the requirements of the revised plan;
—to review the job profiles, on the basis of task analyses, to meet the requirements of the health system, based on the primary health care approach; and then
—to review the training programmes in the light of the revised job profiles and of the results of the follow-up of graduates.

An outstanding priority seems to be to decide what measures could be taken in the present financial situation to improve the distribution and utilization of trained manpower in order to avoid costly wastage.

Annex 2

Health manpower development in New Zealand

At the request of the Government of New Zealand, the country was visited from 22 September to 12 October 1985.[1] The purpose of this visit was to review jointly with national officials the health manpower development activities in the light of health systems development.

The specific objectives of the visit were to study:

—the health manpower policy of New Zealand in relation to its overall health policy;
—the health manpower plans in relation to health manpower policy and health plans;
—the educational policy, plans, and practices for various categories of health personnel in relation to health manpower policy and plans;
—the utilization of health personnel in different health care settings;
—the health manpower results, trends, problems and the ways that New Zealand hopes to overcome those problems, and especially the aspects from which other countries could learn.

General background

New Zealand lies south-east of Australia in the South Pacific Ocean. It is made up of two principal islands, North and South Islands, as well as Stewart Island, Chatham Islands, small outlying islands, and certain overseas territories. It is over 10 000 km from the west coast of the United States and 1600 km from the south-east tip of Australia. North, South, and Stewart Islands extend over 1750 km from north to south, the maximum width being 450 km. Its area, excluding overseas territories, is 267 254 km^2, 42.7 % of which is in North Island and 57.1 %

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[1] The review itself lasted only from 24 September to 5 October 1985.

in South Island. The country is largely mountainous and its climate is temperate.

The Maoris, of Polynesian origin, came to the country before and during the 14th century. The first European settlers arrived in New Zealand in 1836. In 1840, the Maori chiefs ceded sovereignty to the British Crown; the islands became a British colony and a steady stream of British settlers followed. Full independence was obtained in 1946. The Head of State is the British monarch. The political system is democratic; the 95 members of the House of Representatives are elected for three years. The executive of the House of Representatives is the cabinet, made up of ministers in charge of various government departments, including health. Each department has its own territorial system covering the country (the Department of Health has 18 health districts). There are also about 200 elected local authorities (in cities, boroughs, counties) which all have some basic public health functions. In addition to the 18 health districts there are 29 hospital board areas. The hospital boards are locally elected and entirely state funded.

The population at 31 December 1984 was 3 299 500. The medium projection for the year 2001 is 3 772 000. Of the total population, 73.7% live in the North Island and 25.4% in the South Island; 85.4% were born in the country, 8.8% are Maoris, 2.9% are Pacific Islanders, and 85.5% are urban dwellers. The crude birth rate in 1984 was 15.7 per 1000 (19.5 per 1000 for Maoris), the crude death rate (1983) 8.1 per 1000 (4.6 per 1000 for Maoris), infant mortality (1983) was 12.5 per 1000 (for Maoris 19.5 per 1000). Life expectancy at birth in 1983 was as follows: male 70.8 years (63 years for Maoris) (in 1977); female 76.9 years (68 years for Maoris) (in 1977).

Of the total population, 27% are in the 0–14 years age-group, and 10% are over 65 years. While it is expected that the total population will increase by the year 2001 by 22%, the 75+ year age-group will grow by 72%.

The GNP per capita in 1984 was around US$7920. The country belongs to the Organization for Economic Cooperation and Development and to the group of economically highly developed countries. The chief products are meat, wool, dairy products, coal, gold, limestone, salt, and natural gas. The chief manufactures are agricultural machinery, chemicals, and textiles, while 9.3% of the active labour force are employed in the agricultural sector. The food processing industry is also important. The recent world economic crisis has hit New Zealand hard. Unemployment stood at 4.4% in 1984.

In 1985–86 an estimated 4.8% of the GDP was devoted to health expenditures while in 1975–76 this proportion was 5.2%. The proportion of gross government spending on health has also declined to an estimated 9.9% in 1985–86 from 11.2% in 1975–76 and 12.1% in 1980–81. All sectors of health care are under pressure to become more efficient and more cost-effective. The total budget per capita in 1984–85 was US$420 and it is estimated that 75% of all health expenditures are state covered. The bulk of the health budget (74%) goes to hospitals (in

1960–61, the figure was 60 %), while primary medical care benefits account for 19 % (31 % in 1960–61), and community health programmes for 7 %. It is estimated that the proportion of national health expenditure devoted to primary health care (PHC) is about 27–28 %, the largest component being subsidies to the private primary medical care services and pharmaceuticals. According to Treasury officials, the question to be asked about the health budget in a period of zero growth is not so much "how much is there?", but "how well are the available funds used?".

The health problems of New Zealand are typically those of a highly developed country where the adult literacy rate is about 98 %, education for the 6–15 year age-group is compulsory and is free up to 19 (in state schools), safe drinking-water is available to all, and 88 % of homes are sewered (the remainder have their own devices, which are generally satisfactory). Immunization coverage in 1983 was between 70 and 75 %. The leading causes of death are cardiovascular diseases (43.8 % in 1982), tumours (22.5 %) and accidents (7.7 %). The major causes of public hospital admissions in 1983 were complications of pregnancy, childbirth and puerperium, tumours, and respiratory diseases. The proportion of smokers is slowly decreasing and the total per capita alcohol consumption has slightly decreased from 1981 to 1982 (from 8.9 to 8.6 litres; no more recent data were available) but both of these habits, as well as obesity, are still major public health problems. Dental health, especially among children, has dramatically improved: in 1979 children and adolescents had 60 % less dental treatment requirement as compared with 1965. The health of the Maori and Polynesian population has also shown spectacular improvement but still lags behind that of the European (pakeha) population. The Maoris have a special concept of health which recognizes its spiritual, psychic, bodily, and family dimensions. Any successful health intervention, as far as this rapidly growing population group is concerned, must take this into account.

The National Health System

The health policy of New Zealand has not been officially stated or proclaimed and thus has to be deduced from different literature sources and oral statements. A typical example of a policy statement may be taken from a report published in 1979 in which the New Zealand Planning Council stated that the two principles of the welfare state are: (*a*) "the state, by providing services which are heavily subsidized or free of charge, should ensure that all citizens have access to good educational and health facilities, regardless of their capacity to pay" and (*b*) "the state should assist those in need and provide individuals with security against hardship arising from sickness, old age . . . and other hazards of life".[1] Further, the report enunciates three principles on which there was broad agreement: (*a*) "in the delivery of health services increased emphasis should be placed on health education, health promotion, and the prevention of disease and accidents (this includes attention to environment and life-style)"; (*b*) "more emphasis should be placed on the development of public health services, such as occupational health"; and (*c*) "policy should move towards the provision of community-based services, including voluntary services, and away from hospital-based services (hospital boards are themselves able to participate in this movement)".[1] It is emphasized that additional expenditure does not itself necessarily improve health; improvements in the health of the community can most effectively be achieved by changes in life-style. These principles were restated in a Department of Health report in 1984, with added emphasis on "primary health care in its many dimensions".[2] A number of priorities are now being considered during the preparation of the Department of Health's first health plan; a policy statement by the nursing profession also exists, and the Maori people recently spelt out their health priorities. A progress report to WHO emphasizes that "the New Zealand Government's health policy is in conformity with the health-for-all goal. The health policy outlines three principal objectives: (*a*) the maintenance and improvement of the health of all New Zealanders, thus contributing to an improvement in their quality of life; (*b*) the provision of health services when and where they are needed, and at a minimum cost to the patient; (*c*) continuation of reforms in planning, organization and administration of health services with special emphasis on greater community involvement in decision making" (unpublished report, 1984). The Minister of Health also emphasized that health services should be reoriented to primary health care, promotion of a healthier life-style, and community involvement, and that emphasis on the hospital sector should be reduced.

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[1] See footnote 1 on page 83.

The New Zealand health system is highly complex, consisting of state, private, and voluntary (nongovernmental) sectors (a tripartite system).

The state health services are vertically compartmentalized as are all the other sectors. The Department of Health, the central health authority, is responsible to the Minister of Health through the Director-General of Health. Under the head office there are 18 health districts (the staffing and functions of the one visited, the Dunedin health district, can be taken as typical); these are organized along strictly vertical lines, each service (dental, nursing, etc.) reporting directly to its own superiors in the head office. The medical officer of health in charge of the district health office has wide statutory responsibilities and considerable independence in carrying out tasks in the broad field of public health, control of communicable diseases, and liaising with a wide range of other departments (social welfare, justice, labour, etc.). The local authorities employ health inspectors, and their health functions are carried out in close conjunction with the Department of Health. The total staff of the Department in 1982 was 3781 (about 300 in the head office), of a health work-force (this term is preferred in New Zealand to "manpower") about 76 000 strong.

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[1] NEW ZEALAND. *The welfare state. Social policy in the 1980s. A report by the New Zealand Planning Council.* Wellington, New Zealand Planning Council, 1979 (NZPC No. 12).

[2] NEW ZEALAND. *Report of the health services manpower planning workshop, Rotorua, September 1982.* Wellington, Department of Health, 1984 (Blue Book Series, No. 18), p. 17.

The public hospital system, entirely funded by the state, is under the control of locally elected hospital boards in 29 hospital board areas. Public hospitals, as well as general practitioner obstetric services provided in hospitals, are free for all, and private hospitals are heavily subsidized by the state so that they are readily accessible to everyone. On 31 March 1984 there were 170 public hospitals with 24 874 beds and 173 private hospitals with 5 809 beds (18.9 %). Thus there was a total of 93.0 beds per 10 000 population, a decrease as compared with 1980, when there were 119.1 beds per 10 000. This decrease is entirely in the public hospital area, as the number of private beds has grown in the period (from 5164 in 1980). Hospital boards employed about 50 000 people in 1984 (48 824.2 full-time equivalents or FTE), 66 % of the total health workforce (88 % of nurses) and spent 80 % of their budget on salaries.

The first-contact level of health care is provided by private general medical practitioners (2284 in 1983, or 1841.8 FTE). Specialist care, outside hospitals, was provided by 986 medical specialists (1983; 394.3 FTE). Private practice is heavily subsidized through a very elaborate system of state benefits which, at the time of their introduction in the early 1940s, covered about 75 % of the actual costs of the fee-for-service system for the patients; today, it hardly accounts for more than 25 %, the rest being paid by the consumers. This explains the rapid growth of private health insurance, which started in the early 1960s to cover private surgical interventions for a few (the waiting period for non-urgent surgery may be 1 year or more) and now covers about 40 % of the population (premiums are tax-deductible). Access to general practitioners (GPs) may still be difficult for certain population groups because of costs. Specialists' fees, except for dental care, will only be paid if the patient has been referred by the GP and the same is true for all other forms of out-of-hospital care, such as laboratory investigations, radiography, physiotherapy, etc., which are all provided on a fee-for-service basis by private practitioners. Prescribed medicaments cost NZ$1.00 per prescription (except for children, the elderly, and welfare beneficiaries). Half of the GPs practise on their own, one-third of them work in group practices, and one-sixth in health centres. There are 14 health centres, which are government built and rented to private GPs, who work in them in groups together with a number of other health workers paid by the hospital board concerned (practice nurses, dieticians, physiotherapists, social workers, etc.). The practice nurses are employed by the GPs but fully subsidized by the state (the subsidy is only 50 % if the GP does not employ a receptionist) in order to encourage doctors to take up general practice (this was originally an incentive for rural practitioners but was quickly extended to the urban ones as well).[1]

In health centres, GPs often continue working as they did before. However, there are initiatives, even in group practices, to experiment with methods that would help to exploit the great potential of these institutional forms for the application of the concept of primary health care (e.g., to eliminate the fee-for-service cum benefit system, which is a strong disincentive for health promotion and preventive work; to develop a health team from those working in the health centre; and to use practice nurses to their full capacity, which is far from being the case today).

Voluntary organizations, largely-state supported, play a very important role in health care delivery. For example, the Royal New Zealand Plunket Society, with its 400 full-time Plunket nurses, provides child health care for 85% of all children under 5 years of age (15% are covered by the public health nurses of the district health offices). The Plunket–Karitane Family Service provides holistic support to families in need. The New Zealand Family Planning Association, the New Zealand Society for the Intellectually Handicapped, the Presbyterian Support Services, and the New Zealand Crippled Children Society are just a few examples of the nearly 90 nongovernmental health organizations in the country; there are many more, if the local initiatives are also counted, as they should be. Such local initiatives include different self-help, community development groups, Maori health initiatives, women's health movements, and even community health workers. The Department of Health created a Community Health Initiatives Funding Scheme to support these initiatives.

With so many different bodies and individuals (Department of Health, hospital boards, private medicine, voluntary groups, the community, local authorities, etc.) all contributing in one way or another to the provision of one or another element of health care, the importance of coordination is very great. There are different coordinating bodies at central and local levels but most of these are informal, *ad hoc* arrangements, while some formally established mechanisms, such as the District Practice Advisory Groups and the Service Development Groups (the latter at hospital board area level) seem not to be very active. The problem of coordination seems to be particularly acute at the primary level, where independent GPs, quite a number of different types of independent practitioner, at least five types of nursing service, social work services, and a host of voluntary and self-help groups are active. The problem of coordination is further complicated by the fact that a number of other sectors are interested in health development—education, treasury, social affairs, Maori affairs, women's affairs, labour, etc. There are some coordinating bodies, like the Cabinet Committee system with its Social Equity Committee, but coordination seems to be carried out mainly informally and on a "fire-fighting" basis, as appropriate formal organizations and mechanisms are clearly lacking both at state and district level.

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[1] There were 1244 practice nurses (820 FTE) employed by 1082 GPs in 1983.

A number of very positive initiatives are at present being developed in the health system, in addition to those mentioned above (health centres, practice nurses, etc.). The Area Health Board Act 1983 makes it possible to set up area health boards, which are completely new bodies created by bringing together the functions of hospital boards and the district offices of the Department of Health, thus fusing together a branch of a state department with a local authority. This will reduce the number of both components as it is expected that, when all the area health boards have been set up, there will be fewer of them than there are hospital boards now (29). However, what is most important is not the structural aspect but the totally new philosophy embodied in the legislation. According to this, the task of the new boards is to address the issues of total health, including the promotive, preventive, curative, and rehabilitative aspects. Their objectives will be:

—to promote, protect, and conserve public health and to provide health services;
—to provide for the effective coordination of the planning, provision, and evaluation of health services among the public, private, and voluntary sectors, through their membership of service development groups as mechanisms for planning; and
—to establish and maintain an appropriate balance in the provision and use of resources for health protection, promotion, education, and treatment.

The advantages of the new system are obvious. The area health boards will ensure the very necessary coordination of the fragmented system at local level as well as carrying out joint planning, as a completely new activity, along "service" lines (e.g., mental health, child health). Multisectoral as well as community participation will also be ensured. Thus the boards may represent the elements of a health system based on the primary health care approach. The Act also provides for the establishment of community committees. So far two area health boards have been established, both of them in 1985. A "rationalization project" may prepare the ground for another one in the southern part of the South Island. However, there is no timetable and the Government's policy is that change should be voluntary and gradual. An area health board will only be set up as the result of an application by the hospital board or boards concerned to the Minister of Health, who would then wish to satisfy himself that the matter had been widely discussed locally, that all the necessary planning and preparation had been done, and that all the necessary conditions were satisfied. According to an educated guess, it may take at least 10 years for all the boards to be established and functioning.

The re-established Board of Health, with its eleven standing committees, started to function in April 1984 as an advisory body to the

Minister of Health. This body should cover the full range of health services and can act on request from the Minister but also on its own initiative. As the membership of the standing committees, organized largely on service lines (including one on primary health care), is drawn from a very wide range of organizations, they will serve a useful purpose in coordination and planning at national level, in the same way as the service development groups at area health board level.

It is hoped that approximately six health regions will be developed, including the contiguous area health boards, to coordinate work and promote the sharing of resources (e.g., expensive equipment and services, which are efficient only if they serve a relatively large population group). The development of such regions has already started and the "rationalization project" mentioned above may be one step in this direction.

There are plans to reorganize the Department of Health head office shortly along functional lines (primary health care, information, etc.). There are also plans to revise the complex benefit system so that, except for children, everybody will have to pay on average about 25% of the overall cost of services obtained (the hospitals would remain completely free). This will also mean the levelling off of the private hospital sector as well as of private insurance, which will be paid for by employers.

Health manpower development

A strong, vigorously growing, and complex health workforce operates this complex health system (see Table A2.1), which constitutes a labour intensive "industry"; in 1983, it employed 5.7% of the total workforce of the country. More than 50 000 of these were health professionals and, of these, 70% were women. While the total population grew between 1976 and 1983 by 3.9%, the health workforce grew by 14.2%;[1] this coincided with a slow-down in population increase and in emigration of health workers, and increasing economic constraints, giving rise to serious concern about possible oversupply, and strong support for the idea that health manpower growth rates must be curbed in a planned way.

Health manpower planning

There was little in the way of formal health manpower planning in New Zealand before the mid-1970s. Planning, as far as there was any, had been carried out by *ad hoc* groups organized by the various professions, which usually did not have the necessary information and were often mainly concerned with preserving group interests. Since the mid-1970s, national manpower planning workshops have been held for medicine, nursing, dentistry, and health administration, based on very much improved data. Structures were created and working processes introduced in those fields for ongoing data gathering and planning. Then, in September 1982, a national workshop was held on health services manpower planning (see footnote 2 on p.83) in order to establish a national mechanism and process for integrated health manpower planning. It is perfectly well understood that planning is not just a numbers game but that it involves decisions about what results need to be achieved and how jobs are best done to achieve those results. Planning is based on the concept of integrated health systems and

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[1] It must be added here that, while in the period 1973–80 the population had grown by less than 1% a year, the active medical workforce grew by about 6% a year. From 1980 to 1983 the rate of population increase remained the same but the medical workforce increased by some 11%. Thus the doctor/population ratio has constantly decreased—from 1:929 in 1971 to 1:598 in 1983.

Table A2.1. Health sector workforce[a]

Category	1976	1980	1983
Air pollution control officers	170	180	180
Ambulance officers (not including part-time and untrained)	270	340	420
Audiologists	15	30	30
Biomedical technologists	NA[b]	385[c]	350[c]
Clinical psychologists	110	120	150
Dentists	1 070	1 140	1 140
Dental assistants	110	110	110
Dental technicians	330	310	290
Dieticians	160	190	220
Dispensing assistants	800	800	800
Environmental health engineers	10	10	20
Food service supervisors	150	190	220
Health education officers	30	30	10
Health inspectors and trainees	390	470	460
Hospital chaplains	60	60	60
Medical laboratory technologists	640	730	770
Medical laboratory assistants	750	900	950
Medical practitioners	4 050	4 880	5 400
Medical radiation technologists	500	530	680
Nurses	17 980	19 200	23 200
Nurse students, hospital-based	6 960	6 050	3 800
Nurse aids, orderlies, other	4 860	6 330	5 900
Occupational therapists	310	380	490
Optometrists/dispensing opticians	280	280	320
Orthotists, prosthetists and trainees	—[d]	220	220
Pharmacists	2 200	2 300	2 300
Physiotherapists	840	1 170	1 270
Podiatrists	170	160	165
School dental nurses	1 390	1 350	1 140
Scientists			
Social workers in the health field	320	490	550
Speech therapists	170	190	205
Training officers	110	100	160
Sub-total	45 200	49 700	52 100

Table A2.1 (*continued*)

Category	1976	1980	1983
Department of Health[e]	1 600	1 600	1 700
Health insurance[f]	50	50	50
Accident Compensation Corporation[f]	50	50	50
Private hospitals[f]	1 000	1 000	1 200
Sub-total	47 900	52 400	55 100
Hospital Boards:[g]			
General treatment:			
Clerical/other	1 500	1 580	1 760
Diagnostic services:[h]			
Pathology	600	680	530
X-Ray	540	590	510
Hotel services:			
House-keeping	3 540	4 240	3 750
Laundry	1 170	1 380	1 300
Dietary	1 940	2 780	2 710
Maintenance, engineering and grounds	2 040	2 660	2 690
Administrative services	2 920	3 750	3 830
Transport	180	270	300
Domiciliary	370	390	490
Psychiatric hospital clerical staff and other	2 890	—[i]	—[i]
Total	17 630	18 320	17 880
Sub-total (approximate)	20 000	21 000	20 500
TOTAL	68 000	73 000	76 000

[a] Source: MORRIS, A. *Health manpower resources, 1983 data*. Wellington, New Zealand Department of health, 1984 (Blue Book Series 20).
[b] Not available.
[c] Plus 100 trainees.
[d] Included under Hospital Boards.
[e] In 1983, some 80 with Health Departments and 170 with Hospital Boards, included below.
[f] Estimates.
[g] All figures are "full-time equivalents".
[h] Includes trainees.
[i] Included above.

manpower development and relies heavily on relevant WHO literature; nevertheless, it is hampered by the lack of a stated health policy and plan and a health manpower policy. As a manpower planning section had been in existence since 1974 in the Department of Health, within the Management Services and Research Unit (now Health Services Research and Development Unit), it was proposed that a Health Workforce Advisory Committee should be established, as a coordinating group. This would be involved in the planning process and mobilize all those interested (e.g., Department of Health, education authorities, health professionals, administrators, educators of health professionals, employers, employees, consumers, and health sector students). The workshop recommended in its conclusions that the Advisory Committee should be established immediately. However, it still does not exist, although a Health Workforce Coordinating Group has recently been established within, and staffed by the Department of Health, in order to prepare for its establishment in due course. It will then be considered one of the standing committees of the Board of Health. An important new development is the establishment of a Health Workforce Development Fund to encourage, with funds of NZ$3–4 million annually, further studies and experimentation.

As it is clearly appreciated that "practical planning depends on what we can afford, and we know this is only short-term. Practical planning is likely to consist of attempts to move a given situation in a desired direction rather than efforts to reach a highly specific goal",[1] relatively little practical planning has so far been carried out. The nursing profession has gone furthest, stating that by 1996 there would be a deficit of approximately 335 registered and 1400 enrolled nurses, and has also suggested how this deficit may be made good. These projections are based on hospital beds and population, the underlying assumptions being based on past experience. For the medical profession, a 25% reduction in medical student intake and graduate output ("moderate restraint" supply projection) was recommended in 1978 and was acted on. Even so, it is assumed that the population/doctor ratio will fall from 626 in 1981 to 472 in 2001 (a 34.3% reduction).

Although the link between the quantitative and qualitative aspects of manpower planning is not yet clearly established and projections are not yet based on consistently stated health goals and the competences needed by each category in order to achieve those goals, attempts have already been made by different categories of health worker, e.g., GPs, to define their respective competence profiles. However, these usually serve, for the time being, only educational purposes (dental technicians, 3-year pharmacists, etc.).

Health manpower training

With a well developed health workforce there is naturally a well developed training system in New Zealand. There are no less than 57 routes whereby health related qualifications can be acquired, basically at universities and technical institutes. Medical doctors are trained in 6-year courses at Dunedin and Auckland, Dunedin also making use of clinical schools in Wellington and Christchurch for the second 3 years of the course. Dentists and pharmacists are trained in Dunedin in 5- and 4-year courses, respectively. Bachelor degree courses are offered to nurses by Victoria University, Wellington, and graduate diplomas and degrees for nurses are also available at Massey University in Palmerston North. Negotiations are in process to establish a BSc-level physiotherapy course at the University of Otago in Dunedin. Courses in the technical institutes are usually of 3-years' duration. Such institutes started to provide health-related courses in 1960 (pharmacy) and the most recent to be transferred to these institutes are the comprehensive nursing courses (Table A2.2). Some categories, e.g., enrolled nurses, are taught in hospitals (1-year course), or even on the job, like the sterile supply personnel. Details of the training of 35 categories of health worker are given in a Department of Health document.[1]

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[1] NEW ZEALAND, *Report of the health services manpower planning workshop, Rotorua, September 1982*, Wellington, Department of Health, 1984 (Blue Book Series, No. 18).

The entrance requirement for practically all courses is now a minimum of 12 years basic education; for university courses, the requirements are even higher. Comprehensive nursing programmes will consider candidates over 20 years of age who do not hold formal academic qualifications provided that they satisfy the criteria established by the institute. There are 2 or more candidates for each place in most courses, and selection is usually based on academic qualifications and, in some cases, on interviews. Admission figures for several categories have been reduced. For example, for medical schools, the graduate output, earlier scheduled to rise to an annual peak of 320, had been adjusted to fall by 1985 and 1986 to about 250. However, the intake is fixed annually and for 1985 the intake to the University of Otago Medical School had been increased by 20. It is planned to reduce the intake in the dentistry school from 60 to 50, but this may also be changed and may remain at a somewhat higher level. Intake is sometimes influenced by extraneous considerations, e.g., it was raised from 25 to 30 in the School of Pharmacy, University of Otago, which seems largely to duplicate the work of the 3-year pharmacy course at the Central Institute of Technology, Wellington, primarily in order to enable the School to hire more staff. The proposal to increase substantially the intake to both comprehensive and enrolled nursing courses is explained in an official document.

The courses in most cases are organized on a "50% theory and 50% practice" basis but, in most cases, the 50% theory is the minimum, with a few notable exceptions (e.g., the dentistry and the physiotherapy schools, where it is about 40%). In some courses, deliberate efforts are made to prepare students for well defined competences. Thus, the pharmacy school in the Central Institute of Technology prepares its students for 197 well defined competences, and the dental technology course in the same institute for 255 competences. Efforts are also being made in other fields (e.g., nursing) to define competence profiles and use them as a basis for curriculum planning.

The national conference on the "Role of the doctor in New Zealand: implications for medical education", held in Palmerston North from 7 to

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[1] NEW ZEALAND. *Report of the health services manpower planning workshop, Rotorua, September 1982.* Wellington, Department of Health, 1984 (Blue Book Series, No. 18).

Table A2.2. Health science courses in technical institutes, 1982

Course	Student intake	Length (years)	Entry requirement[a]	Practical experience[b]	Award	Outcome
Pharmacy	100	3	UE	Internship	Diploma	= Registration
Occupational therapy	90	3	UE	Hospital and community (30%)	Diploma	= Registration
Physiotherapy	100	3	UE	Hospital (35%)	Diploma	+ State examination = registration
Comprehensive nursing	666	3	Sixth form certificate	Health agencies (50%)	Diploma	+ State Examination = registration
Chiropody	15	3	UE	Clinic (50%)	Diploma	= Registration
Radiotherapy	15	3	UE	Hospital (66%)	Diploma	= Registration
Medical laboratory technology	100	5	UE	Medical laboratory (60%)	NZ Certificate in Science	= Registration
Dental technology	15	4	4 years of high school	Dental laboratory (75%)	Certificate	= Registration
Orthotic and prosthetic technology	18	3	School certificate	Hospital and artificial limb board (66%)	Certificate	—

[a] UE = university entrance.

[b] Percentages in brackets indicate the percentage of the total study time.

11 October 1985, is a sign of the awareness of the need to reorient medical school curricula so as to make them relevant to the health needs and demands of New Zealand society. However, the present[1] curricula of the two medical schools, although slowly changing (e.g., general practice is now included in the programme, although too little and too late, while extensive behavioural science courses are provided in Auckland), can still be characterized as discipline-based and tertiary-care hospital-oriented. They are isolated from the community and from other health professionals, even where there would be an opportunity for a team approach in the learning environment. In addition, they pay little attention to health promotion and prevention and continuity of care, and are heavily biased towards passive student participation (lecturing). Even in the university pharmacy school 4-year programme, only the last 6 weeks are spent in practice, and in the dentistry school only in the fifth year are students allowed to observe practice outside the university clinic.

The transfer of nursing education from the hospital to technical institutes, which was planned to be completed in 1986, meant that service- and apprenticeship-based education would be replaced by an education- and student-based programme leading to comprehensive registration, while the hospital-based programme led to registration in only one or two of the areas represented within the comprehensive qualification. The comprehensive nursing programme (e.g., at the Otago Polytechnic) trains students to be able to work in the community as well as in hospitals and to use the problem-solving approach. The community aspects are well integrated in the whole curriculum and, even for teaching hospital care, small local and district country hospitals are used as well as tertiary-care ones. A conscious attempt is made to get away from the hospital myth and students therefore go to the community from the first week onwards, but to hospitals only from the second year.

In the technical institutes, a safeguard in curriculum development is the system of advisory committees for each course, in which the Department of Health, Department of Education, the profession, and the employers are all represented and have a say in drawing up the training programme.

The tutors of the technical institutes are all trained in educational theory and practice in 12-week courses. For nurse tutors, there are university courses in education. The majority of teachers of the dentistry course participated in teacher training workshops in the higher education development centre of the university, on a voluntary basis. However, this is far from being typical; the majority of university teachers are not trained at all in educational theory and practice.

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[1] Nursing Manpower Planning Committee. *Nurse workforce planning: report.* Wellington, New Zealand Department of Health, 1985, pp. 14–21

Health manpower management

Problems in the management and utilization of health personnel are indicated, *inter alia*, by the fact that the rates of retention for the different categories are not very high and the distribution of the workforce is rather unequal. For example, New Zealand has lost about one-third of the doctors it has produced since 1960 and the average working life, in the nursing service, of registered nurses is only 17.5 years during the 42 years after graduation. Similarly, during the 4 years after registration, 52% of graduate occupational therapists (72% after 6–10 years) and 55% of physiotherapists (after 6–10 years) dropped out and were no longer professionally active. The active workforce tends to congregate in the major urban areas, and especially in those with universities. The differences may be quite striking. For example, in 1983 the number of medical doctors per 100 000 population was 37.0 in Maniototo hospital board area, 53.1 in Vincent, 53.8 in Dannevirke, 206.4 in Wellington, 310.7 in Otago, etc. The number of persons per physiotherapist in 1983 was 3100–3200 in four hospital board areas, in another it was 9500 and in yet another, 11 100. In 1984, there were 38 000 inhabitants per ophthalmologist in the south of the North Island as compared with 83 000 in the south of the South Island; 20 700 per psychiatrist in the south of the South Island compared with 52 000 in central North Island; and 23 100 per internist in the south of the North Island compared with 70 800 in the south of the South Island.

Before they can practise, all professional health workers must be registered with their respective registration bodies, which then also provide annual practising certificates. For instance, medical doctors may practice only if they are registered with the Medical Council of New Zealand. Medical graduates can apply for registration only if they have obtained house officer experience, in a resident medical officer capacity, of not less than 12 months. For nurses, the registration body is the Nursing Council of New Zealand, for physiotherapists the New Zealand Physiotherapy Board, etc. Registration is highly relevant to the training function since the registration bodies are enabled thereby to monitor training standards. Some monitor the curriculum and facilities of the training institutions only in broad terms; some express quite detailed views about the curriculum; and some actually conduct the registration examinations. In the case of universities, registration bodies have always accepted a monitoring role and have not sought to spell out a detailed curriculum. It is expected that the same will apply to the technical institutes as well.

Postgraduate-post-basic education is available for many but not all categories of health workers. For medical doctors, it is customary for them to spend at least one more year after the preregistration year in hospital before they go into general practice or start to specialize. The vocational training period, i.e., specialization, lasts 3–5 years under the aegis of the Royal College concerned (there are New Zealand colleges for community medicine,[1] general practice, and obstetrics and gynaecology; the other courses are the same as those in Australia and the colleges are located there, with branches in New Zealand). The register of specialists recognized by their respective colleges is kept by the Medical Council (and by the Department of Health). There are, in addition, a number of postgraduate diplomas and degrees available for many of the categories of health worker. For nurses, there are advanced diploma courses in technical institutes and university courses in nursing practice, education administration, and research. Bachelor's degree courses are available; master's degree courses will soon become available, and later PhD courses. For dentists and pharmacists, master's and doctorate degree courses are available. Physiotherapists can go on to an advanced diploma course (one full year) and social workers can also obtain a master's degree. There is definitely a tendency for overtraining with practically no control over the professions' drive to achieve as high a standard of training as possible. This leads to a growing "education inflation", regardless of what the tasks to be performed require.

Career structures have been worked out for several categories of health worker; however, some have none, and others are not well developed (health system researchers, clinical nurses, occupational therapists, etc.). Postgraduate education programmes are often not linked to career structures. For example, occupational therapists can obtain a master's degree but that does not improve their career prospects. The same is true for GPs who, although they can obtain a specialist registration from their college, gain nothing by it under the present arrangements.[2]

Incentives are a problem, and not only in the field of postgraduate education. There seem to be too few incentives to encourage work in rural areas, in specialties that are less attractive, to remain in, or return to the active workforce, or to do better work. The general medical service benefit system, rewarding only curative work, acts as strong disincentive to health promotion and prevention, and to the utilization of practice nurses to their full capacity. The new population-based funding system for hospital boards as well as the capitation system for private practice are, on the other hand, meant to be strong incentives for health rather than just curative-oriented work.

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[1] Specialist training in community medicine consists of a 1-year full-time diploma programme and then 3 years' full-time experience in a college-approved training post, after which there is an examination for entry to the college. To enter the diploma course, the requirement is a minimum of 2 years' postgraduate clinical experience. For GPs, the same scheme applies and the 1-year course (one-third in hospital, two-thirds in supervised GP practice) is called a family medicine training programme. For the other college memberships, there are no full-time courses, but 3–5 year residency programmes followed by college examinations.

[2] However, postgraduate medical education has been encouraged in all hospitals. A New Zealand Council for Postgraduate Medical Education was established at the request of the New Zealand Medical Association and the New Zealand Postgraduate Medical Federation (representing the postgraduate medical societies) to foster postgraduate medical education. It is also said that GPs may be gently guided in such a way that they will, in future, take up private practice only after specialization.

There is no incentive to encourage participation in continuing education either and, for those in private practice, such participation involves loss of earnings; it is also difficult to find locums. In spite of this, a great deal of continuing education is available—short courses, seminars, conferences, etc.—for all categories of health worker, usually organized by their respective professional societies, associations, and colleges as well as, to a lesser extent, by universities, technical institutes, and others (e.g., for nurses, by the Department of Health). For the medical profession, the postgraduate medical societies also play a major role. However, these activities are of a piecemeal character and there is no regular funding. Most of the activities aim at increasing knowledge with no particular reference to the practical needs of the participants.

In the management of health personnel, job profiles (detailed competence lists) are hardly used, even in the rare cases when they do exist (e.g., for 3-year trained pharmacists), for supervision, quality assurance, performance appraisal, or for any other purposes. There seems to be no follow-up of graduates by training institutions to assess the quality of education; there is no monitoring and therefore no possibility for feedback to the planning, management and training processes. There seems to be no quality assurance programme at all.

There is no full-time course at either undergraduate or postgraduate level on education in health management. An extra-mural diploma course in health administration provided by Massey University has produced, since 1974, over 100 graduates with a medical, nursing, and general administrative background but little account is taken of this qualification from the point of view of promotions. No appropriate full-time course is as yet available for general and nursing administrators either. A new development to be welcomed is the Diploma in Community Health (see footnote 1 on p. 95). Nevertheless, the 1984 unpublished progress report on health for all stated that "what is lacking, however, is sufficient people with the necessary skills and experience to provide leadership". In spite of valuable but scattered initiatives, and current training workshops in the Department of Health in health planning, there is a widely recognized need to develop further, and to coordinate, health management training activities. There is an especially great need for training for leadership and for middle-level management.

A number of state organs are in charge of certain aspects of health manpower management: the State Services Commission lays down rules for employment, discipline, salaries, and conditions of service for all state employees; the Health Service Personnel Commission, which started work in 1984, encourages the development of nation-wide career structures, provides an employment framework for staff in area health boards (at present, hospital boards) and coordinates rates of pay throughout the health service; the Health Medical Officers' Grading Committee (established in 1985) determines whether a medical officer shall be promoted to a higher salary level; and the Health Medical Officers' Advisory Committee advises the Minister of Health on the conditions of employment of medical officers, etc.

Health manpower resarch

Fairly intensive research work is being carried out on health workforce development under the vigorous and most able leadership of Dr G. C. Salmond, Deputy Director-General,[1] Department of Health. The first aim of this research is to provide the information needed for decision-making and to generate simple, but robust models that are easily understood and reliable to use. Studies are carried out mainly by, and with the encouragement and under the aegis of, the Department of Health Services Research and Development Unit (formerly the Management Services and Research Unit). Further studies are being planned, and the newly established Health Workforce Development Fund is also of very great importance from this point of view. It is hoped that the Medical Research Council will eventually consider funding health manpower research as an integral part of health systems research activities.

Coordination

It is keenly felt that much more coordination is needed, both within the manpower development process and between this process and health systems development. As has been seen already, a great number of organizations and individuals are involved in health workforce planning, education, and management. The users and employers of health personnel are also numerous. The health services manpower planning workshop report also states that:

> "Planners' projections of how many health workers should be doing what will not generate much confidence until there is a much more rigorous approach to all aspects of health planning. Education schemes developed in isolation from such planning are not likely to produce health workers of the type and in the numbers required. A new and integrated approach is needed . . . More open and informed debate is needed between the various health disciplines, and between the health and education sectors, about the future goals for health care and about the training and deployment of health workers . . . To these goals workforce planning must be firmly linked." (see footnote 2, p. 83).

However, coordination mechanisms that would bring together those responsible for planning and training health personnel on the one hand, and those responsible for management of the health workforce, on the other, are few and far between. AT national level there is a Standing Committee on Relationships in Tertiary Education (SCORITE) which brings together all those concerned with university, college, and technical institute education but the Director-General of Health is not a member of it, and is present only by invitation when it is deemed necessary and, in fact, rather infrequently. There is no standing committee at national level that would bring together the different sectors and organs interested in health workforce development (e.g., the Department of Health, the Department of Education, the Treasury, the University Grants Committee, the Hospital boards Association, professional bodies, registration bodies, etc.). The planned Advisory Committee may develop into such a committee, when established. At present, coordination is on an *ad hoc* basis and, here as well as in the health system in general, is usually concerned with "fire-fighting". The Allocation and Organization of Health Services standing committee of the Board of Health may, in the meantime, be dealing with health workforce development coordination matters and liaise with the Coordinating Group until the Advisory Committee is formed.[1] The University Grants Committee, which is the Government's advisory body on the country's needs for university education, and whose "*placet*" is needed before any curriculum can be funded, said that they had a very pleasant "informed relationship" with the DOH but nothing more formal than that. At local level, as already stated under health manpower training, the technical institutes have, for each of their courses, an advisory committee which ensures the wide participation of all interested bodies. However, the University of Otago Medical School stated that it has no "formal link" with the Department of Health.

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[1] Promoted to Director-General in 1986.

Conclusions

General background

New Zealand is a highly developed country now facing temporary economic difficulties, in the same way as other developed countries. It has a relatively small, aging, ethnically and culturally diverse, highly urban population, but with an important agricultural sector. It has all the socioeconomic and health characteristics of a highly developed country.

The national health system

This is a highly complex tripartite system, very well adapted to the conditions of a welfare state, comprising the state, private, and voluntary sectors, although there are few health services that are purely private or purely voluntary as all are to a greater or lesser degree funded by the State. These services form a network of interwoven services, each relying largely on the others to be fully effective. In a complex and highly fragmented system, in which, in addition, the public services are strongly compartmentalized vertically (public health, hospital, nursing, dental services, etc.), coordination is vitally important, based on jointly agreed policies and plans. A number of significant unofficial statements may constitute the elements of a policy but there is no official health policy statement. There are also numerous valuable efforts in health planning in different fields, but the first health plan for the Department of Health is only now being prepared (corporate planning) and will be an aggregate of a number of vertical plans. A great deal of effort has also been put into coordination, mostly informal, but there is very little in the way of formal arrangements, i.e., mechanisms at both national and local levels.

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[1] In fact, its terms of reference are: "To examine and advise on resource requirements including manpower."

The health system is not only very well adapted to the political, socioeconomic and health conditions but has proved to be adaptable and shows signs of rapid and exciting development in the right directions. Examples include the legislation to allow the establishment of area health boards (that may help to reorient the health system towards PHC and enable a very strongly hospital-based health system to develop a health orientation, instead of the present disease orientation); and a "rationalization project" in the southern part of the South Island, south of the Waitaki River, which is basically moving in the same direction; the rigorous stimulation of community health initiatives, also through a special fund, and of Maori health initiatives; the rapid development of the nursing profession (new type of comprehensive education instead of the hospital-based apprenticeship type of training, rapidly evolving post-basic education, new type of practice based on the nursing process concept in hospitals as well as in the community, etc.); plans to reorganize the Department of Health head office on functional lines so as to promote the development of a health system based on the primary health care approach, etc.

Now that the first corporate plan is being prepared it may be hoped that, on this occasion, and to provide a solid basis for planning, a national health policy will be elaborated and enunciated. This should spell out the main health goals, priorities, and directions of health development, say, until the year 2000, so as to facilitate the achievement of health for all in New Zealand terms. The policy should be based on the primary health care concept, which has been accepted by New Zealand, on the understanding that this defines not only a level of care but also a philosophy, strategy, a series of actions, and an approach on the basis of which health systems are reoriented so that all levels (secondary and tertiary) of care support the grass-roots level, namely first-contact (primary) care. A reoriented health system would also be based on community involvement and initiatives and, among other things, on the development and utilization of community health workers; on multisectoral collaboration coordinated through mechanisms yet to be developed; and on a more equitable distribution of resources, achieved by transferring funds from hospitals to primary health care and to community health initiatives. Such a clearly stated, officially declared health policy, based on the political will to implement it, could then serve as a basis on which a national health plan and, within that framework, a health manpower policy and plan could be drawn up. The national health policy and plan will, of course, have to be revised from time to time so as to bring it up to date. The Board of Health seems to be an appropriate mechanism for that purpose, in cooperation with the area health boards.

A number of bodies both at national and local levels have the potential to serve as the very much needed coordinating mechanism if their membership is suitably enlarged and they are designated and used as such (the cabinet committee system, the Board of Health with its standing committees, the District Practice Advisory Groups, Service Development Groups, etc.). Area health boards, if and when formed, together with their service development groups, could also become important elements of the coordination network. It is hoped that their establishment will be speeded up by appropriate encouragement and stimulation (like the "rationalization" project). In these boards, special attention will have to be paid to ensuring that the necessary shift of resources from the hospital sector to a health system based on the primary health care approach takes place smoothly and leads to a more equitable distribution of those resources. Already the present hospital boards could play a greater role in that direction, using the new population-based funding system. All the coordinating bodies will have a major role to play in the future ongoing national health planning process (the Board of Health, area health boards with their service development groups, etc.).

Health manpower planning

In the process of defining and enunciating a consistent national health policy, a health manpower policy (goals, priorities, main directions) will also have to be elaborated and enunciated—since no such policy exists at present—to serve as a basis for health manpower planning. However, in planning during the past 10 years and especially more recently in the 1980s, heroic efforts have been made and a number of exemplary results, worthy of international attention, have been achieved. The most important of these is the general acceptance of the need for planning for health personnel, together with the establishment of mechanisms, structures, and an ongoing process for that purpose. Also the first results have become available concerning the process of regulating the somewhat unruly growth of the health workforce, especially that of doctors, and ways and means to deal with a projected shortage of nurses. It is well understood that the process has its limitations as regards quantitative forecasting, because of all the uncertainties in predicting economic development and changes in demography (e.g., due to migration) and in the health status of the

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[1] It was explained that, with doubts about the use of fluoride and with the rapid aging of the population, the dental morbidity forecasts are more than uncertain.

population (e.g., dental morbidity). Nevertheless, if planning is carried out as a continuous process based on well-established health manpower policies, and as an integral part of national health plans (corporate planning), it is an invaluable and indispensable guide for health workforce development.

However, if it is to serve that purpose, health workforce planning now has to take the next step and develop the vitally important qualitative side of plans. This must be based on competence profiles for each category of health worker, defined by the analysis of the functions and tasks to be performed in order to solve the priority problems defined by the health plans. Such profiles should also serve as the basis for quantitative forecasts. For example, in the case of nursing, plans will depend on how and for what functions registered nurses, as opposed to enrolled nurses, will be used. Quite clearly a broader use of the latter would influence the need for the former. The same is true for the GP–practice nurse team.[1] The definition of competence profiles and quantitative forecasts based on them can also curb the "educational inflation" that is now developing, by clearly indicating what sort of competence is needed and in what quantity. In this way, greatly needed qualitative and quantitative guidance can be provided to the educational sector. People should obviously be trained to the levels necessary to enable them to operate competently in clearly prescribed roles.

National health planning and, as a part of, and closely related to it, health workforce planning, based on the concept of health for all through primary health care, may perhaps consider the further training and utilization of the many different categories of community health workers, not only to complement the skills of health professionals but also, first and foremost, to mobilize community health initiatives. These workers, to carry out specific tasks (e.g., caring for the elderly, for the terminally ill, and for psychiatric patients in the community) and for general health promotion and the mobilization of the community for health, will certainly be trained and used on a larger scale, and this will then be taken into account in the whole planning process.[2] Once their respective job profiles are defined in the planning process, their training can easily be arranged, e.g., in the technical institutes (which are already engaged in this type of activity). The Community Health Initiatives Funding Scheme will undoubtedly play a key role in stimulating and guiding this process.

Health manpower training

Based on the new health manpower policies and plans, the training programmes for the different categories of health workers, which are often developed in isolation from health systems development, will need to be revised and reoriented to the primary health care approach. A good example of the necessary revision and reorientation is that taking place in nursing education at all levels. The recent (October 1985) national conference on the role of medical doctors in New Zealand society, and on how to adjust medical education to this newly defined role, is another example of awareness of the need for change and of charting the right direction in the change process. Further good examples are the initiatives to define competence profiles (pharmacists, dental technicians, GPs). Efforts are also being made in medical schools to reorient courses, and mechanisms have even been created for that purpose. The further changes that can be contemplated in order to reorient programmes to PHC, would: make them much less theoretical, more practical, and based entirely on expected competence; train future health workers for work both in hospital and in community settings, and in teams; be based on problem identification and problem-solving, as well as independent and continuous learning; and ensure commitment to work where needed in a health system based on the PHC approach. This, of course, means: that the community, together with its health facilities, should be just as much the site of training as the tertiary care hospital; that students should work together with other future health workers on joint activities where each category contributes towards solving a priority problem, just as should happen in real life; that programmes should preferably be entirely integrated on a problem basis; that students should be put in active learning situations instead of being obliged to remain passive listeners (which implies drastically reducing the amount of lecturing); and that students should be provided with as much opportunity as possible to practise under supervision at places where they will be expected to work after graduation and to become familiar with the other levels of health care. Such an educational system, which would pay particular attention to the social and economic aspects of health care as well as to the development of communication skills, could briefly be characterized as:

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[1] It is suggested that nurses could take over many of the repetitive aspects and other components of the workload of GPs; they should be regarded as an "extension" of the doctor and relieve him/her of tasks which could be performed equally well by the nurse.

[2] Community health workers, recruited from the community in which they are going to serve, will work mainly on a voluntary basis; however, some of them will be paid (on a project or contract basis), although they may then cease to be truly "community" agents.

—competence-based;
—community-oriented and community-based;
—multiprofessional (based on team work);
—problem-based; and
—student-oriented.

In addition, of course, they would be science-based and adapted to local needs and resources. Such programmes exist in other countries and a Network of Community-Oriented Educational Institutions for Health Sciences[1] has been set up ready to help others who are interested in change. Change in established institutions, first and foremost in medical schools, may be approached by introducing experimental parallel tracks, using the experience already gained with such a two-track approach in the USA[1] and elsewhere. The newly created Health Workforce Development Fund could be extremely useful in encouraging and supporting such developments.

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[1] General Secretary, Professor Dr J. M. Greep, State University of Limburg, Maastricht, Netherlands.

Tutors for technical institutes are trained in educational principles and practices and there are also initiatives in this field at university level (for example, in the dental school). However, if the changes needed are to be carried out in an effective manner, there will be a need for systematic training of teachers so that they can facilitate a learning process relevant to the tasks to be performed to meet the health needs and demands of the people. A centre for educational development in health at one of the universities could be the focus of such teacher training activities, encompassing all health worker teachers/tutors, and could also become a focus for the research work needed in health personnel education (e.g., to evaluate the proposed two-track system).[2] There will also be a need to develop a system of rewards which would encourage teachers to make the necessary changes. The promotion system for teachers, which is now based solely on research work, will also have to be changed. If universities have two equally important tasks, namely to generate and to "impart" knowledge, then both should be equally taken into account when it comes to promotion. That teaching performance is difficult to measure is no excuse, as there are well-tested methods for doing so.

There seems to be a need for those health workers who will be in managerial positions in health teams (doctors, registered nurses, etc.) to learn how to manage/supervise in practice (role-playing, simulation exercises, supervised practice, etc.). Similarly, since nearly all health workers may, at some time during their careers, have to teach other health workers, there is a need for them to learn the elements of educational principles and practices during their student days.

New types of graduates cannot be expected to function properly in an unchanged health system nor can they themselves be expected to change it. It is also unrealistic to expect a new type of health system, based on the PHC approach, to work properly with people trained for another sort of health system. Therefore the changes in the health system and in health workforce training should go hand in hand.

Health manpower management

To increase the efficiency and effectiveness of the health workforce at all levels, and to improve the retention rate as well as geographical distribution, the management of health manpower may have to be further improved. The wastage of manpower, whether in the form of low remainder rates or of using people for tasks that less highly trained personnel could perform as well, or even better, is extremely costly and inacceptable under the present and foreseeable economic constraints.

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[1] For example, at the University of New Mexico, Albuquerque, New Mexico, USA.

[2] The Regional Teacher Training Centre in Sydney, Australia, may be helpful in such a development.

Job profiles (lists of expected competences), once defined, would serve useful purposes, not only in planning and training but also in the management of health personnel. They would serve as a basis for monitoring[1] health personnel, the results of which could then be fed back to the planning, training, and management sub-systems of the health workforce development system, which could then be adjusted accordingly. The job profiles could serve as a basis for organizing team work, performance appraisal, and supervision as they would show clearly who is supposed to do what and, in fact, each occupational group could be planned for and work successfully only as a part of total health manpower and within the wider context of health and socioeconomic development. Job profiles are the basis for the development of the standards and targets on which the indispensable quality assurance programmes can be based; such programmes might then be regularly carried out by area health boards (for the time being, by hospital boards) and/or professional associations. In this way an objective basis would be provided for the development of an incentive system that would reward better job performance.

Vitally important is an incentive system that would motivate health workers in the rather fragmented tripartite health system to work in the directions to be indicated by the health policy to be enunciated in the future and on the implementation of national health plans. The fee-for-service system is not particularly effective in promoting a health system based on the PHC approach, including health promotion, prevention, community health work, and multisectoral collaboration, which are all to a certain extent time-consuming. Alternative financing systems, among them the Subdivisible Sessional Scheme (triple S), the capitation system of payment, and the population-based funding method, merit particular attention. A good system of rewards would certainly also solve the problem of inducing people to work in remote rural areas as well as facilitate the establishment and functioning of health centres as basic entities in a health system based on the primary health care approach. It would also help to convince private practitioners that it was in their interest as well as in that of the public to work in the same way. The importance of the introduction of a pension scheme for private practitioners can also be mentioned here, since it would also be necessary to provide a firmer basis for manpower forecasts.

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[1] This means checking: (i) whether the health worker is being properly utilized in the tasks for which he/she was trained; (ii) whether he/she is ready and able to cope with these tasks; (iii) in what fields his/her competence needs updating; (iv) his/her job satisfaction; (v) his/her contribution to consumer satisfaction; and (vi) his/her living and working conditions.

A career structure exists for most categories of health worker and, for those where this still seems to be a problem, e.g., health systems research workers, clinical nurses, and occupational therapists, it will undoubtedly be developed. However, there seems to be a gap between career structures and postgraduate/continuing education. Efforts to upgrade qualifications seem not to be greatly appreciated. While, on the one hand, clearly defined qualitative and quantitative manpower plans are needed to curb "educational inflation", there is also a need, on the other hand, to encourage the acquisition of higher qualifications when and where this is in the interest of the development of health systems. Thus, for instance, it is clearly in the public interest for GPs to qualify as specialists in general practice and this ought to be recognized and rewarded.

While there are many initiatives in continuing education, there is no system that will ensure that: (*a*) all health workers, without exception, are given the opportunity for life-long learning; and (*b*) all the learning opportunities are provided to help maintain and improve the competence needed to do the job properly, and, in fact, to improve job performance. During the building-up of such a system the possibility may also be considered of regular reregistration (recertification) based on proof that job competence has been effectively maintained and not merely that courses have been followed (this may be combined in some way with the present annual practising certificate system). There also seems to be a need for a pool of manpower (which may be state-provided) that could provide locums while private practitioners are on study leave. The planned regionalization may help to solve this problem. (In at least one group practice, this problem was solved within the practice and this may point the way to future development).

There are also a large number of initiatives in training leaders or managers for the health system. However, the reorientation of the health system to the primary health care approach and the formation of area health boards will give rise to a need for a host of well-trained health leaders, both at national and middle level, who fully understand the health-for-all through primary health care concept and are able and competent to lead the health systems in that direction and manage the forthcoming changes. For this purpose, an appropriate training system is needed and the New Zealand College of Community Medicine, together with the relevant university departments (and not only in the medical schools), will certainly be willing and able to help build up such a system, hand in hand with the Department of Health and other interested parties. Training of future planners for national and local (area health board) levels will undoubtedly be a part of this system.

Proper management of health personnel, due attention to the above problems, and in general to the working and living conditions of health workers will, no doubt, decrease staff turnover in the New Zealand health system. The regionalization of health services (see the section on the National Health System) may also act in this direction by helping to reduce professional isolation, increasing the opportunities for continuing education, involving health workers in educating future health workers, thereby also upgrading their own competence, etc. Increased flexibility in employment practices (more job-sharing, part-time jobs, retraining possibilities for those wishing to return to the active workforce) will also contribute to the same objective and together with the foregoing will increase the job satisfaction and motivation of health personnel, without which there can be no effective health workforce.

Health manpower research

As in all other development fields, research is indispensable for further progress in health workforce development. A great deal of high quality, decision-linked research is going on in this field in New Zealand, especially initiated and encouraged by the Department of Health. The newly created Health Workforce Development Fund is very important for the future. It will, it is hoped, not only stimulate further studies, on which planning and other executive decisions have to be based, but also experiments, e.g., with the two-track system in medical schools or with new types of task distribution between registered and enrolled nurses, or between GPs and practice nurses, etc. This type of research is also necessary to create a climate favourable to change. It may be hoped that the Medical Research Council will also become more interested in funding health systems research and, within that framework, health manpower research as well. Some research priorities in this latter field, in addition to those mentioned above and already researched, include: testing policy options; function and task analysis; role definition for establishing competence profiles for each category of the health workforce; need–demand and supply factors in health workforce planning; follow-up of graduates by schools and programmes; development and testing of quality assessment instruments; economic aspects, cost effectiveness of different development alternatives; coordination mechanisms and their effectiveness; consumer satisfaction with health workers' performance; and the effectiveness and efficiency of conventional versus more relevant training programmes, etc.

Other health manpower issues

The national conference on medical education was well attended by health workforce employers (Department of Health, hospital boards). It is to be hoped that that interest will continue to be manifested by all employers in all aspects of health workforce development, especially in its economic aspects (e.g., curbing "educational inflation"). Hospital boards and, later, area health boards, will certainly be most interested in efficiency/effectiveness issues in relation to the health workforce and to all aspects of their management (discussed above), since they employ the large majority of the New Zealand health workforce and spend 80% of their considerable financial resources on them.

Among all those concerned with health workforce development, both within and outside the health sector (Department of Health, universities and technical institutes, professional groups, students, employers—first and foremost hospital boards, later, area health boards—the Department of Education, the University Grants Committee, the Treasury, the State Services Commission, the Health Service Personnel Commission etc.), coordination is as vitally important as in the general health field. It is to be hoped that, if and when the Health Workforce Advisory Committee is formed, it will encompass all those interested and will serve as the indispensable permanent coordinating mechanism. The existing limited mechanisms (SCORITE, the curriculum committee of the Grants Committee, the course advisory committees in technical institutes, an informal "university for health for all" committee at the University of Otago and other more or less informal groups) are of great importance but they do not by any means obviate the need for a formal, permanent, established, well-functioning mechanism at national (and for similar mechanisms, at area health board) level (a services development group for health workforce development will play this role well, if established).

Lessons for other countries

Health workforce development in New Zealand offers a great deal to those in other countries who may be interested to learn from its considerable experience: how to develop health workforce planning in a very varied, highly complex system; how to develop an entirely competence-based curriculum (technical institute course for pharmacists and dental technicians); how to develop a comprehensive nursing course in which the community aspects are properly integrated and which is truly community-based; how to develop and stimulate (Health Workforce Development Fund) credible decision-linked research on health workforce development which also creates a climate favourable to change; how to bring together the most varied groups (teachers, employers, consumers, voluntary agencies, professional groups, etc.) interested in medical education to discuss and stimulate change; and how to stimulate community health initiatives, etc. Further developments which, when in full swing, will deserve international attention include qualitative health workforce planning; area health boards; the rationalization project south of the Waitaki River; regionalization; the health centres; the utilization of community health workers, etc. In addition, there seems to be a very high level of awareness of the need for change. Changes have already started, in fact, and it seems likely that those changes will promote the achievement in New Zealand of health for all through primary health care.

Annex 3

Health manpower development in the Republic of Rwanda

This review of the health manpower development process in the Republic of Rwanda was conducted over the period 10–22 February 1985.

General background

Rwanda is located in Central Africa, with Burundi, the United Republic of Tanzania, Uganda, and Zaire to its south, east, north, and west, respectively. It is one of the landlocked countries of Africa, with the Indian Ocean 1200 km away and the Atlantic Ocean more than 2000 km distant. It has an area of 26 338 km².

The population of Rwanda was estimated to be about 6 million at the end of 1984 and for the year 2000 the lowest estimate is 7.8 million, the highest 10 million. The natural increase at present is estimated to be 3.7% annually (the population doubling time is 19 years). An estimated 47% of the population was under 15 years of age and only 3% over 65. Infant mortality in 1982 was estimated to have been 143 per 1000; it has been declining since that date.

The economy is largely agricultural, fruits and vegetables predominating; there are also some cash crops for export, such as coffee, tea, and quinine, together with animal husbandry and limited earnings from mining. The GNP per capita in 1983 was US$236.

Rwanda is divided administratively into 10 prefectures, each of which is divided in turn into a number of sub-prefectures. The prefectures are also subdivided into communes, of which there are a total of 143. Each commune is further subdivided into an average of 10 sectors, and each sector in turn into an average of 10 cells of 300–500 people.

The urban population is less than 10% of the total, and the 90% of people in the rural areas do not live in villages, but are thinly scattered on hill slopes. The literacy rate in 1983 was 40% for men and 30% for women.

The country's main health problems are linked to the socioeconomic, educational, nutritional, and environmental conditions. In 1984, about 60% of the population had access to clean drinking-water. The most prevalent diseases, in order of importance, are malaria, diarrhoeal diseases, parasitoses, and pneumonia. The life expectancy at birth is less than 50 years.

The National Health System

Health policy and strategy

The health policy aims at the improvement of individual and collective living conditions and of the health status of the population. It is defined as being a health policy of the masses focusing on the most vulnerable groups, namely mothers and children, as well as workers. Since 1979, Rwanda has adopted health for all by the year 2000 as its main health policy line. In 1981 it accepted primary health care as the main strategy leading to health for all. The Third Economic, Social and Cultural Development Plan, 1982–86, which was prepared before 1981, does not yet entirely reflect these principles, and the programme contained in that document even less.

A country health programming seminar was held in May 1983 which updated the strategy as well as the action programme, based entirely on health for all through primary health care. The Fourth Plan (1987–91) will, it is hoped, clearly spell out the health-for-all policy and strategy together with a medium-term (up to 1991) and long-term (up to 2000) action plan.

The Health System

In addition to the Government, many other organizations have contributed to the construction of what is to become slowly and gradually an integrated, pyramidal health system, based on the primary health care approach. Many parallel and vertical sub-systems (vaccination, family planning, nutrition, etc.) are now being integrated into a system in which the private sector, and within it the different religious organizations, accounts for up to 65%. In the public or government sector, the Ministry of Public Health and Social Affairs (MINISAPASO) is by far the most important, although other branches of government also play a part, especially in the education of health personnel. The private sector consists largely of religious missions, which operate hospitals, health centres, dispensaries, and other facilities. Some idea of their importance is given by the following data on the hospital situation in Rwanda in 1974, analysed according to sponsorship:

	No. of hospitals	*No. of hospital beds*
Public	12	2 397
Private	13	1 628
Total	25	4 025

In addition to private hospitals, religious missions sponsor 71 health centres, 12 dispensaries, three maternity homes, and facilities for the mentally ill and physically handicapped. All of the church missions as well as other authorized private health institutions collaborate with the Government through an Office of Authorized Medical Facilities in Rwanda (BUFMAR), which coordinates the work of those facilities.

Most of the 186 physicians in Rwanda work in organized programmes, but they also engage in private practice—some doctors do so exclusively. There are also numerous private pharmacies. Traditional health practitioners and traditional birth attendants are numerous; they charge fees for their services and must be counted as part of the private sector. In terms of overall health-related expenditures, it estimated that, in 1977, the private health sector in Rwanda accounted for 37% of the total.

The Government health system will be based on integrated health centres, of which there will be at least one in each commune, which will provide promotive, preventive, curative and rehabilitative health care, i.e., all eight essential components of primary health care as defined by the Alma-Ata Conference. However, in addition to the 143[1] health centres, not evenly distributed because there are still at least five communes among the 143 without health centres, there are a number of *dispensaires*, which provide mainly curative care but nowadays some vaccinations and health education as well. There are also some other grass-roots-level health institutions, such as nutrition centres. At the next level, there are the rural and prefectural hospitals, and then the highly specialized tertiary-care referral hospitals. It is envisaged that in each health region, which corresponds to a prefecture, there will be one prefectural and two rural hospitals. Each of these hospitals will be responsible for a zone in which the health centres will be supervised by the hospital personnel, but this is still only at the planning stage; at the present time they only serve as referral points for the nearby health centres. In each region, the person who now supervises the health centres and other peripheral institutions, is the regional medical director, who is the representative of MINISAPASO at this level and the supervisor of the expanded programme on immunization.

At the top of the health system is MINISAPASO, which was reorganized in 1984 in order to integrate social and health activities, and to strengthen maternal and child health work, the development of human resources, management capabilities, the provision of essential drugs, and the creation of conditions permitting the population to participate actively in health affairs.

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[1] It must be emphasized that different sources give different figures for the number of health centres and for other features of the health system. The most often cited and/or most recent and/or official figures are used here.

Including both government and private health facilities, MINISAPASO reported in 1983 the following numbers of institutions:

Hospitals	28[1]
Health centres	143
Dispensaries	71
Special establishments	6
Reference laboratories	3
Maternity homes	6
Nursing homes (*infirmeries*)	23
Health posts	—

The 1983 country health programming seminar called for two more prefectural hospitals, bringing the total up to 30, and for 1500 health posts, but no target date was set.

The plans envisage a health post for each sector (of which there are roughly 1500); this would have preventive and promotive health tasks only and thus would not cover the eight essential components of primary health care in its activities. The tasks envisaged are: mobilization, health promotion, and liaison with the health centre. However, for the time being no such posts exist and there are only the Red Cross rural medicosocial health promoters, of whom 328 had been trained by the end of 1984.

The MINISAPASO budget has grown in absolute terms by 75% since 1979, but its share of the total national budget actually declined from 8.0% in 1978 and 6.4% in 1979 to 4.8% in 1983. The health budget per capita has grown between 1979 and 1983 from 110 to 182 FRw (100 FRw = approximately US$1):

	Total health budget (FRw million)	*Health budget per capita (FRw)*	*Health budget as proportion of national budget (%)*
1979	508	110	6.4
1983[2]	889	182	4.8

Additional funds are, however, available to the government health service from foreign sources—multilateral and bilateral—as well as from private external sources. In addition the Ministry of Higher Education and Scientific Research (MINESUPRES) is responsible for the training of university-level health personnel and the Ministry of Primary and Secondary Education (MINEPRISEC) for that of middle-level health personnel; the figures given above do not include the expenditure on these training programmes.

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[1] Including 20 rural hospitals and 8 prefectural hospitals, three of which are referral hospitals.

[2] Figures for 1984 are available but include the budget for social affairs as well and are therefore not comparable with those for previous years.

Health plans

The health plans are an integral part of the national socioeconomic and cultural plans. The third plan (1982–86) was still rather hospital-bed-oriented. Even health centres were quantified in terms of their number of beds (despite low bed occupancy rates of 15–25%).

The country health programming seminar in May 1983 has changed the outlook and at it plans were made for the new type of health infrastructure briefly described above. It also spelt out the tasks of the different levels (health posts, health centres, rural, regional, and referral hospitals) in some detail, based entirely on the primary health care approach. Health centres are seen in this approach as the most peripheral elements of the "official" health system, while health posts will only undertake health promotion and encourage the population to use the health centres.

Health centres are visualized as being true centres of rural development, integrating all the activities that have been carried out in the past, and are still partially being carried out by vertical organizations (family planning, nutrition, environmental health, vaccination, etc.). The functions of health centres are intended to include the provision of comprehensive preventive and curative services as well as other development activities, such as literacy education, organization of food cooperatives, cookery courses, etc. All existing dispensaries, nutrition centres, etc., are therefore earmarked to be integrated, in due course, into the health centres, which may help to correct the existing maldistribution of such centres. However, some sort of health institution is available in *all* communes. An estimated 10–20% of the rural population do *not* have a health institution within 1 hour's walking distance.[1] The health plans worked out by the country health programming seminar have recently been revised (1985) in the light of the resources provided by the World Bank to the health, nutrition, and population sectors.

Health manpower development

Overall health manpower resources in Rwanda are far less than those needed, so that health manpower development has high priority in government policy—at least in quantitative terms.

Health manpower planning

No health manpower policy has yet been worked out and the plans are expressed in terms of numbers of personnel of different categories to be trained. However, it should be noted that one of the four priorities identified by the country health programming seminar was the development of personnel and especially of teachers for health personnel schools.

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[1] It must be remembered that, as already pointed out, there are practically no villages in Rwanda, the rural population being widely scattered on hill slopes.

The seminar drew up fairly detailed standards for staffing the different types of health institution together with a general strategy for achieving them. A health post would be staffed by only one health auxiliary, while a health centre would have a medical assistant, six nurses (of two grades), a laboratory technician, a social assistant, and 11 other supporting personnel.

Before the detailed health manpower plans of Rwanda are described, it will be helpful to reproduce the inventory of all types of health personnel in 1984 according to MINISAPASO:

Personnel category	*Number*
Physicians	224
Medical assistants	355
Nurses:	
Grade A1	81
Grade A2	374
Grade A3	497
Laboratory technicians	59
Health auxiliaries	118
Pharmacists	5
Dentists	3
Social workers	111
Other health personnel	171

Based on the staffing standards for 1986 (as laid down at the 1983 seminar), the requirements for personnel are higher for all categories, but especially for grade A3 nurses. The target numbers, and the deficit, as compared with existing supply (as of 1984), are shown in Table A3.1.

The personnel deficits indicated in Table A3.1 were unfortunately not corrected by 1986. Thus the deficiency of 882 grade A3 nurses, for example, may be compared with an output of only 40 such nurses per year—clearly insufficient.

Table A3.1. Health personnel needed to reach the 1986 goal and deficit, as compared with 1984 supply

Personnel category	Goal for 1986	Deficit
Physicians	347	123
Medical assistants	316	0
Nurses:		
Grade A1	33	0
Grade A2	542	168
Grade A3	1379	882
Laboratory technicians (grades A1–A3)	286	225
Social workers	263	152
Pharmacists	33	28
Dentists	6	3
Dental technicians	53	53

As regards the qualitative side of health manpower planning, a workshop held in 1980 led to a series of detailed job descriptions for different types of health personnel. All the descriptions were based on expert opinions, so that verification by task analysis is needed. The 1980 workshop also proposed criteria by which the quality of job performance (in terms of a list of procedures) could be judged.

Health manpower training

In the past, many different entities in Rwanda have trained various kinds of health personnel in different ways. Great efforts have since been made to simplify the process, and also to integrate the training of middle-level personnel into general secondary schooling. Basic education is being reformed, but it will be another 2 years before the process is completed. In the new scheme, primary education (starting at age 7), has been extended from 6 to 8 years, the additional 2 years covering polytechnical education of great practical value. Secondary education will last 6 years, and will have various tracks, including one for middle-level health workers.

Education to the A2 level (see Table A3.2) means the full 6 years of secondary school (after 8 years of primary education) preparatory to university entrance. The A3 level requires only 4 years of secondary school and does not qualify the student for university entrance. The A1 level indicates a lower university degree, based on 3 years after secondary school. The A0 level means a full university degree. There is also an A4 level, with one year of training after primary school (not in the official school programme). These levels apply to the teaching of sciences, arts, law, management, etc., as well as to the health sciences. The A0 and A1 levels are under the control of MINESUPRES; the A2 and A3 levels come under MINEPRISEC; and the A4 level, where it exists, comes under the relevant technical ministry—for health, under MINISAPASO.

The training resources at these levels in the health professions are listed in Table A3.2. In addition to these programmes, there are others, left over from the past—for example, that for nutritional assistants (4 months after primary school). There are also some new initiatives to upgrade traditional birth attendants at a few health centres.

The Red Cross organizes the courses for health promoters. Up to the end of 1984, more than 2000 such personnel had been trained, including 328 rural medicosocial health promoters to staff village health posts. These useful personnel, stationed in the communes, have the task of inculcating the concept of a healthy life, giving first aid, and serving as the "antennae" of the health centres. The Red Cross also trains trainers and supervisors of the health promoters—136 of them by the end of 1983.

The curricula of all the training programmes have been revised within the framework of the educational reform. Learning objectives have been based on defined job profiles in most programmes. Steps have been taken to increase practical work in the curricula, which are at present strongly biased towards theory.

The new 7-year curriculum at the Faculty of Medicine of the National University of Rwanda (the country's only medical school) is entirely discipline-oriented. It consists of 1 premedical year in the Faculty of Sciences, 2 preclinical years, 3 clinical science years, while the seventh year is a rotating internship. Apart from the final year, 60 % of the time is devoted to theory, mostly presented in lectures. Practical work is done in the university teaching hospital, and half of it in the outpatient department. The sixth year is going to include a period in rural hospitals, and in the seventh year 2 weeks will be spent in a health centre. There will also be a 15-hour course in public health administration, but no instruction of educational principles and methods.

The curriculum for training medical assistants is also very theory-oriented; in one school 80 % of the study time is devoted to lectures. Although these personnel are intended to staff health centres, there is no clear instruction in the work to be carried out at these centres. One period is planned to be devoted to public health, but this will be spent mostly in rural hospitals. These deficiences are explained partly by financial limitations. Another problem is that students now come after having completed two years of polytechnical school; here they largely lose their learning habits, and they forget French (the language of secondary, but not primary schools, where the national language—Kinyarwanda—is used). Therefore, in the first year, much time is spent in relearning French, and the drop-out rate is very high (in one school visited, it was 50 % in the first three years). Management and educational principles and methods are included in the new curriculum.

The A2 nursing curriculum, which is very similar to that for medical assistants, is more balanced and half the time is spent in hospital practice. Again, little time is spent, mostly because of shortage of funds, in rural health centres where almost one-third of the A2 nurses currently employed are actually working.

A similar situation may also exist for most if not all the secondary level programmes, though it seems that the courses for laboratory technicians and social workers are more practice-oriented.

The training of teachers in educational principles and practices has now taken root in Rwanda. There have been five workshops on methods of teaching, in which teachers from all levels participated. Several nursing teachers went abroad to attend A1-level diploma programmes, which included teacher training, while others went to the WHO Training Centre at Lomé. Currently, a 9-month period of teacher training is provided for 11 teachers at the A2 level by the Faculty of Medicine. The regular training of all teachers in schools for health personnel, however, has yet to be organized. Much instruction in middle-level programmes is given by part-time teachers, who are physicians and know little or nothing about educational principles and methods.

Table A3.2. Training programmes for health personnel in Rwanda at levels A0–A4, and some of their characteristics, 1985

Category	Level	Education required (primary + secondary) (years)	Length of training (years)	Number of schools/ programmes	Number who can be admitted (in all schools)	Percentage loss during the training period (estimated)	Estimated cost of training for each health worker (US $)
Physicians	A0	8+6	7	1	50	50	15 000
Nurses	A1	8+6	3	—	—	—	n.a.
Medical Assistants	A1	8+6	3	—	—	—	n.a.
Medical Assistants	A2	8	6	3	120	50	4 000
Nurses	A2	8	6	2	80	30–60	6 000
Social workers	A2	8	6	5	200	30	n.a.
Laboratory technicians	A2	8	6[a]	1	16[b]	—[c]	n.a.
Nurses	A3[d]	8	4	2	60	30	n.a.
Laboratory technicians	A3	8	4	1	30	30	n.a.
Auxiliaries	A4[e]	8	1	2	50[f]	5	n.a.

[a] The laboratory technician at level A2 can begin training after 2 years of secondary school; thus the length of the training course is really 4 years. In principle, medical assistants attend this course after 2 years of their programme, but experience has shown that it is science students who choose laboratory studies.

[b] This figure can be gradually increased to 40.

[c] This course is now only in its second year.

[d] With assistance from the World Bank, two new schools will be constructed; their admission capacity will be around 40, or 20 for each school.

[e] It has been proposed that training at this level should be ended.

[f] As of 1986, there will be one more school, with an admission capacity of 30.

n.a. = not available.

Teaching/learning materials seem to be generally adequate in Rwanda, although there are certain shortages, and the country has joined the WHO coordinated health learning materials programme. A search for funds to support this programme is in progress.

No follow-up of graduates to learn about their work experiences seems to be carried out in most of the training programmes.

Health manpower management

No country can afford to waste trained health personnel. In Rwanda, shortages of several categories and the high cost of training (see Table A3.2) indicate that the effective utilization of costly human resources is essential.

Geographical maldistribution of health personnel is serious in Rwanda, and concentration in urban areas is especially great in Kigali and Butare. All types of health personnel are three or four times more numerous in these two prefectures than in any other. In 1980, the population ratio of total health personnel was 1 to 2561 persons, but in Kigali it was 1 to 1381, in Byumba 1 to 5097, and in Gikongoro 1 to 5690. Furthermore, 77% of the personnel are absorbed by the hospitals, at the expense of primary health care. Finally, there is maldistribution even within the staff in prefectures, trained staff congregating in the hospitals and in certain health centres or dispensaries while at the same time other health centres or dispensaries may have only one trained person, such as an A3 nurse, or even only someone who was trained on the job.

It is small wonder that personnel refuse to go to peripheral health units, when salaries are no higher than in the cities, housing is provided only for the director, and other problems of living and working conditions must be faced.

Supervision of the peripheral health units is weak. The medical director of the health region may, at best, visit them three or four times a year, and sometimes also the inspector of the expanded programme on immunization and some environmental sanitarians (at A2 or A3 level). There is no technical supervision by hospital physicians.

Continuing education is organized by MINISAPASO, by BUFMAR, and by the Medical Faculty of the University. Refresher courses have been organized for the heads of health centres, emphasizing primary health care, EPI, hygiene and sanitation, family planning, etc., but for other personnel—even those in hospitals—the opportunities for continuing education are meagre. For laboratory technicians, summer on-the-job refresher courses have been arranged in recent years. The most regular continuing education is that organized by BUFMAR for all categories of personnel of the authorized private health institutions, for four weekends per year.

Career mobility is somewhat restricted for most types of health personnel. Only two to four A2-level staff are sent abroad for A1-level training per year, and the medical school can take only a very small number of students every year. In the new level A2 training, sciences are relatively weak, which will hamper university admission. Level A3 health workers, after 2 years of work and another 2 years at school, can advance to the A2 level. Sometimes, such an advancement may be granted simply by a central jury, but this is exceptional. As for level A4 staff and those trained on the job, the only path to promotion is through further schooling. Otherwise, within-grade salary increases occur routinely every four years, up to step 5.

All new health graduates are obliged to work in the public service for 5 years, but this has not overcome the geographical maldistribution noted earlier. Graduates are not compelled to work in hardship areas, and there are no incentives to attract them to such areas.

Coordination

The Government is well aware that health is a multisectoral matter, and in 1983 the setting up of a National Health Council and Regional Health Councils was already envisaged. These bodies, however, have never been active. After the ministerial reorganization it is expected that they will become operational, together with another coordinating body—the Interministerial Coordinating Committee. Such coordination is especially important in health manpower development where, as noted earlier, three major ministries, as well as BUFMAR, are concerned with the training of personnel. Recently, a health section was created in the Office of Pedagogy of MINEPRISEC, under a physician, but much remains to be done to achieve proper collaboration with MINISAPASO.

Conclusions

Rwanda has accepted in principle the policy of health for all, and the idea of a health system based on the primary health care approach. It is now expected that the national policy and strategy of health for all by the year 2000 will be elaborated during the Fourth Development Plan (1987–91), including the goals, objectives, priorities, and principal lines of action. This plan will include detailed programmes with target dates and budgets—all carefully matched to financial and human resources. The plan will also indicate the path to further integration of the health system and its further reorientation to primary health care. The remaining months of the present planning period could be considered as preparatory to the 1987–91 plan.

Because Rwanda is relatively small and densely populated, coverage by the health infrastructure gives rise to only a few problems: (*a*) peripheral health facilities are rather unevenly distributed; (*b*) the health centres serve a population averaging 40 000 (range: 20 000–57 000) over areas with a radius of 5–25 kilometres; (*c*) 5–10% of the people are more than 1 hour's travel time from a health centre; and (*d*) some of the peripheral health units are grossly understaffed. Several mutually complementary options might be considered for solving these problems:

(1) Temporary, less ambitious staffing patterns for the health centres, such as using A4-level instead of A3-level health workers, might be considered.
(2) The training of A4-level health workers could be accelerated and their A3-level training might be considered later.
(3) Very simple training of community health agents, capable of staffing the health posts and providing all eight essential elements of primary health care, could be initiated and rapidly expanded. They could be trained in health centres and paid by the community. A badge and a kit might be issued by the State after successful completion of training. Drugs could be sold, and the stock replenished with the money collected (i.e., a revolving fund). Initially, one agent could be trained for each sector (10 per commune), then one agent could serve two cells (about 1000 people), and ultimately there might be one agent per cell (about 100 per commune).
(4) Health centre staff could be trained to train community health agents, as well as to supervise them and provide continuing education.

Health manpower planning

At present, Rwanda has no real health manpower policies and plans. The staffing norms, prepared by the country health programming seminar in 1983, could be considered as *desiderata* for a long-term quantitative plan. The likelihood of reaching the goals by the year 2000, however, is small. If A3 nurses are taken as an example, the quantitative goal is 1379 and the current supply 497, implying a need to train 882 by the year 2000. The annual drop-out rate of these nurses is about 10%. If the two new schools (of the World Bank project) start to produce graduates in 1991, their output will hardly compensate for the annual loss by attrition. Even if a 5% attrition rate is assumed, the available stock of A3 nurses in the year 2000 would not reach 900—well below the 1379 needed. Thus, one of the most crucial staffing components for health centres will remain inadequate.

In a word, the quantitative manpower plans for 1987–91 must take account of: (*a*) the available budget for training and employment; (*b*) the need for a gradual build-up of the health system based on the primary health care approach; (*c*) the attrition of both students and staff; and (*d*) the possible adjustment of training capacity to meet the current and medium-term needs of the country.

In the light of the financial situation and the level of external assistance to be expected, some painful decisions may be necessary. One plausible alternative, noted above, would be to start staffing health centres (and even hospitals to some extent) with A4-level rather than A3 nurses—nurses oriented to primary health care and well trained for it.

Gradually A4 nurses having the ability could be trained to the A3 level, later to the A2 level, and later even to the A1 or the A0 level.

Possibly four A4 nurses could be assigned to each health centre; two of them would travel to the hills and work on health promotion and prevention with the community health agents. In remote sectors, one A4 nurse could be assigned to a health post under the supervision of a health centre. Funds would have to be found, of course, to employ all these A4 nurses, which may entail reduced expenditures on the training of other personnel (such as more costly A2 social workers, since two A4 nurses can be employed for the "price" of one A2 social worker and four A4s could be trained for the price of one A2). Finally, the necessary training capacity would have to be developed (see below).

In the planning process, the job profiles for all types of health personnel would require revision, based on task analyses and in the light of the tasks in a health system based on primary health care. The job description of community health agents will need to be expanded to cover the eight essential elements of primary health care. If a decision is made to base staffing patterns, initially only, on A4 level, job profiles here too would need thorough revision in the spirit of primary health care-based polyvalency. The job profiles of A2 and A3 nurses would also appear to require adjustment, since in practice there seems to be little difference in the functions of these two categories.

Health manpower training

The whole health personnel training system may need revision. Current non-university training of health workers at the A2 and A3 levels is part of secondary schooling. The drop-out rate is extremely high; in one A2 nursing school visited (Rwamagana) it was over 60% (15 graduates expected from 40 admitted). In the A2-level medical assistant schools, drop-out is at least 50%. Social workers may in the future be overproduced, while there is gross underproduction of A3 nurses. Alternative strategies for changing the whole training process would include the features described below:

(1) The entire selection process might be decentralized so as to: take greater account of the wishes of candidates; allow some freedom to the schools in student selection; choose students more often from places where they are expected to work later; and allow more freedom for reorientation after the first and even the second year.

(2) In the A2 and A3 curricula, the general subjects (including French) might be concentrated more at the beginning of the course, with only an introduction to the special subjects. In the first year, there might be greater concentration on French, as long as teaching continues in that language, and students should be failed *only* when they are clearly unsuitable for the profession concerned.

(3) The admission capacity of all schools, especially at the A3 level, might be expanded.

(4) If the temporary emphasis on A4-level nurse staffing is accepted, a few of the A2-level schools (e.g., two of the five schools for A2 social workers) might be "lent" by MINEPRISEC to MINISAPASO for a few years to train A4 nurses. If this is not feasible, those schools might be temporarily used for the secondary education of A3-level nurses under MINEPRISEC; the additional training of A4 nurses would then require special schools, perhaps financed by the World Bank. MINEPRISEC might then help to staff these schools by personnel "on loan". Other alternatives, of course, might be considered, but calculations show that the country health programming goals will not be attainable, under present circumstances, by the year 2000. Finally, to acquire enough candidates for A4-level training, students dropping out of A2- and A3-level programmes and health workers trained on the job in various institutions should be favourably considered for admission and people should also be admitted from places where it is assumed that they will subsequently work.

(5) The whole training system might be revised so as to provide a definite career structure. Preference should be given, in admission to courses at A3 level, to A4 candidates with work experience and good records. The opportunities for A3 workers to advance to the A2 level should be greater than they are now. Finally, the possibility of allowing A2 workers to take the A1 level course could be seriously considered. MINEPRISEC could make it possible for health workers who have not completed full primary school education to take it by correspondence or in evening classes so as to permit them to enter the career structure from A4 upwards.

(6) A4 level health workers should be able to specialize, by taking short courses in pharmacy, dentistry, laboratory, environmental health, etc. after a few years of work. This applies even more strongly to workers at the A3 and A2 levels, once they have been freed from their current heavy work load by the entry of A4 level staff.

(7) Teachers should be given regular training in educational principles and practices so that they can facilitate learning relevant to Rwandan needs in all types of health school, and especially in the non-university schools using physicians as teachers. Rwanda now has enough trained health teachers to form a consultative group for MINISAPASO for planning and implementing such activities. There also seems to be a need to speed up the replacement of foreign teaching staff by Rwandese at all levels.

(8) Training of traditional birth attendants in the health centres should be increased, since two-thirds of deliveries are still handled by them; the same applies to traditional health practitioners.

(9) Training of community health agents should be organized by the health centres, in close collaboration with the Red Cross. These health workers should be chosen by their communities from literate people of a certain age. The directors of the health centres should be prepared for this training work in workshops lasting about a week,

> which would also help them to provide continuing education to community health agents and to their colleagues in the health centres. Some of the Red Cross promoters could also be considered for such training.

It will be necessary, based on the revised job profiles, to evaluate and review the objectives and curricula of the various training programmes so as to reorient them further to the requirements of primary health care. The programme of the Faculty of Medicine is rather long (7 years), and seems to need major revision if the primary health care approach is to be adopted. Although the courses are, in principle, based on problem-solving and the integration of clinical and preclinical training, the actual education provided is traditional in character. According to the objectives laid down, graduates should be capable of managing a dispensary or a health centre, and of training and retraining paramedical personnel for whom they are responsible. In fact, the programme does not prepare them for either of these tasks.

All the training programmes need to become more practical and less theoretical. The time spent in health centres should be greatly increased, precisely defined learning objectives fixed and the time necessary to achieve them provided.

All the training programmes might be oriented towards: (*a*) increased polyvalency; (*b*) multiprofessional team teaching/learning; (*c*) development of problem-solving capability; (*d*) promotion of student learning through active participation in learning situations rather than passive listening to lectures; (*e*) provision to students of all possible opportunities to practise, under supervision, at places where they will later be working (e.g., for medical assistants and others normally working in health centres) and to become acquainted with other levels of health care (community-based education); (*f*) development of self-learning and life-long learning habits; and (*g*) encouragement of a commitment to work where needed in a health system based on the primary health care approach. Such training programmes already exist in a number of other countries.

The training of community health agents will have to be worked out, in accordance with their job profiles. Such programmes may also be found in other countries.

For health personnel who will occupy managerial and supervisory positions (doctors, medical assistants, A2 nurses, etc.) tere seems to be a need to learn how to manage and supervise in practice (role playing, simulation exercises, supervised practice, etc.). Similarly, nearly all health personnel will be expected to teach other health workers during their careers, and should therefore learn educational principles and practices. Similar training programmes are needed for those already at work, and some have already been started. As proposed earlier for educationally trained teachers, a consultative group for management training might also be formed consisting of those 4–5, or even more, Rwandese who have been especially trained in this field. The task of the latter would be similar, *mutatis mutandis*, to those of the educational groups.

Health manpower management

To increase the efficiency and effectiveness of health workers at all levels, and to improve their geographical distribution, certain management changes may have to be made. In some cases, this may seem costly, but the wastage of expensively trained manpower costs even more. Such changes may include, among others, some of the following:

(1) The introduction of financial and social incentives (e.g., special recognition, more rapid promotion) for rural service; perhaps special incentives for personnel on mobile service and for A4-level personnel who are sent to work in health posts.
(2) Greater regularity and consistency in placement to assure assignment of personnel to health centres for as long as necessary.
(3) Provision of housing, however simple, in rural areas, *inter alia* by mobilizing community initiatives.
(4) Further strengthening of the national system of continuing eduction for all categories of health personnel, especially in rural areas, aimed at improving their performance and using the staff of health centres as valuable training resources.
(5) Introduction of a career development scheme for all types of health personnel, from A4 to A0 level (see above).
(6) Creation of leadership and management training capabilities, using the consultative group associated with MINISAPASO, proposed above.
(7) Strengthening of supervision at all levels, based on well-defined geographical zones for each institution, and applying standard check-lists based on job profiles.

While Rwanda has made a commitment to develop health systems based on the primary health care approach, funds and personnel are still allocated mainly to hospital-based medicine. Also, considering the condition of the country, some current views may be termed somewhat elitist. These views, for example, hinder the training and use of community health agents and the upgrading of traditional birth attendants. They encourage the training and utilization of A2-level health workers where A3-level ones would be equally if not more useful; and even envisage eliminating the training of A4s, with whom the present staffing problems could be quickly and efficiently solved as an interim measure. There is a need, therefore, to hold orientation workshops for health leaders, also involving the National Council of Physicians, at which the implications of health for all and the primary health care policy and strategy could be thoroughly discussed. Similar orientation is needed for MINEPRISEC and MINISUPRES officials responsible for the training of health personnel.

Little seems to be known about the graduates of the different programmes. Their career choices and drop-out rates, how well they are trained for their jobs, etc., are not known. A simple follow-up scheme could be established, and could serve also as the basis for a much-needed health manpower information sub-system with a feedback mechanism; this could also help in monitoring job performance, assuring quality, and generally adjusting health manpower planning, training, and management to changing needs.

Coordination

It is hoped that the National Health Council will be extended to include the Ministry of the Civil Service and Professional Training (MINIFOPROF) and become active. It is also hoped that, under it, an Interministerial Committee of Health Manpower Development will be created, with representatives of MINISAPASO, MINEPRISEC, MINISUPRES, MINIFOPROF, MINIPLAN, and BUFMAR. This committee would prepare the ground for, and then see through the implementation of, decisions taken by the National Health Council on the planning, training and utilization of health personnel. (The proposals contained in this review might be discussed by such a Committee).

The heroic struggle of Rwandese health leaders and workers, under very difficult conditions, is impressive and is a guarantee that present difficulties will be overcome and that the country will eventually achieve health for all. WHO is prepared to continue technical cooperation, within its budgetary constraints, in finding solutions to the problems that Rwanda is facing in HMD, in whatever way the government sees fit.

Priority order of tasks

The priorities among the work to be done to improve Rwanda's entire health manpower development programme will naturally depend on the decisions of the competent national authorities. One possible approach, but not necessarily in the order given below, might be follows. MINISAPASO might first decide to base the staffing of health centres and hospitals on A4-level, instead of A3-level, personnel; their qualifications could then be gradually improved, within the framework of a consistently planned and implemented career scheme; health posts would be staffed with community health agents. If such a decision is made, then:

(*a*) the necessary financial decisions must be made to ensure that funds are available for implementing the above health policy, principally by reallocating existing funds;

(*b*) the necessary educational decisions must be taken to ensure the training of the personnel needed for the above policy (MINIPRISEC and MINISAPASO);

(*c*) realistic manpower plans must be drawn up, based on the health plans and economic realities;

(*d*) the detailed adjustment of the training system (categories, capacities, etc.) to the requirements of the manpower plans must be worked out;

(*e*) job profiles must be reviewed in the light of task analyses, to meet the requirements of the health system, based on the primary health care approach;

(*f*) training programmes must be reviewed in the light of the revised job profiles and the findings of follow-up of graduates; and

(*g*) decisions must be taken as to the possible means whereby, under present financial conditions, the distribution and utilization of trained health manpower can be improved so as to avoid costly wastage.

Annex 4

Health manpower development in the Socialist Republic of Viet Nam

This country review of health manpower development in the Socialist Republic of Viet Nam was carried out over the period 1–10 August 1983.

General background

Viet Nam is emerging from several decades of war and disruption, and even now is not completely at peace. Since the end of colonial rule in 1945, the country has not enjoyed any significant period of peaceful reconstruction, so that its current severe economic difficulties are easy to understand.

The population in 1979 was 51 million, of whom nearly 80% were rural. In 1983, the estimate was 56 million. The people belong to more than 60 ethnic groups, but the Kinh account for 84.4%. The country has an area of 331 688 km^2, and may be divided into three distinct regions: the plains, the midlands, and the highlands. The climate is tropical and subtropical, and the economy is mainly agricultural. The GNP has not been reported in recent years, but in 1977 it was stated to be US$160 per capita.

In spite of a truly tragic colonial heritage (e.g., in 1945 there were 51 doctors, 21 pharmacists and 47 hospitals in the whole country, the general mortality rate was 26 per 1000 and the infant mortality 300–400 per 1000), a 40-year period of war and extraordinary economic difficulties, Viet Nam has made great strides in rebuilding the country. Achievements are especially great in the health field where, in the north, nearly 100% coverage has been achieved while in the south, with which the north was reunited in 1975, such coverage is realistically envisaged at the latest by 1990. Infant mortality is 33.9 per 1000 and life expectancy at birth has grown from 32 years (1945) to 62 (in 1981). There are also remarkable achievements in education: the literacy rate, which was about 20%, has gone up to 85% and 9-year primary education has recently become obligatory. Completion of 3-year secondary education, for which about 60% of those eligible enrol, is now required for entrance to all health schools.

Although health conditions have improved dramatically since 1975, they are still characterized by the high incidence of preventable infectious diseases and malnutrition typical of developing countries. Drinking-water supplies and excreta disposal are still unsatisfactory and the birth rate is high, giving rise to heavy demand for maternal and child health services. The population is growing at a rate of 2.1% per year. Yet, in the cities, the problems of developed countries—cancer, cardiovascular diseases, accidents—are already appearing.

Viet Nam is now administratively divided into 40 provinces and a number of centrally-run cities. These are divided into 466 districts and 8649 communes and villages, the communes having populations in the range 2000–10 000. For certain purposes, the country is divided into 10 "health zones".

The national health system

Viet Nam has solemnly affirmed its adherence to the policy goal of health for all, and has developed a strategy to achieve it through primary health care.

The basic principles of the health system were spelled out in the new Constitution of the Socialist Republic of Viet Nam and developed further in 1982 by the Fourth National Congress of the Vietnamese Communist Party. A national strategy for health for all was worked out for the period 1981–85, but some objectives are envisaged up to the year 2000. These include a clean environment, the eradication of preventable infectious disease, the reduction of population growth to 1% per year, life expectancy at birth increased to 70 years, and improved nutrition.

The more detailed objectives of the Third 5-year Plan (1981–85) were:

(*a*) promotion of hygiene (construction of latrines, wells, and bathrooms, the goal being one latrine per family and one well and bathroom for three families), plus immunizations and other measures to reduce the incidence of infectious diseases;

(*b*) improvement of the quality and effectiveness of health care, with particular attention to the commune and district levels, and consolidation and strengthening of the health network at provincial and national levels to support the first-contact level;

(*c*) the strengthening of maternal and child health services, including nutrition and family planning, with a reduction in the rate of natural increase by 1985 to 1.5%;

(*d*) an increased supply of pharmaceuticals, by developing local medicinal plant cultures and increased production, so as to double drug output, based on local raw materials, by 1985;

(*e*) the development of efficient medical treatment, available to all, with health surveillance of each citizen.

These objectives guide the efforts of a unified Ministry of Health, having its headquarters at Hanoi, with a pyramidal administrative structure covering the various political levels of the country. At the central level, the Ministry is divided into 16 departments, reflecting its very wide range of responsibilities. These departments cover not only all aspects of preventive and therapeutic health services, but also such functions as planning, health manpower training, drug manufacture, and international relations. Research institutes also come under the Ministry of Health.

At the level of the provinces (and major cities), a branch of the Ministry is responsible for all preventive and therapeutic services in dispensaries, hospitals, sanatoria, etc., and also for a secondary technical school for health personnel.

At the level of the districts (rural, small towns), the Ministry is responsible for: (*a*) a general (polyvalent) hospital with a polyclinic; (*b*) a peripheral laboratory; (*c*) a brigade for hygiene, epidemiology, and malaria control; (*d*) a pharmaceutical factory or pharmacy; (*e*) a unit for training health personnel; and (*f*) two or more intercommunal polyclinics, assisting the commune medical stations.

Finally, at the community level, health stations are responsible for the whole range of functions encompassed by primary health care. A health station may serve a rural commune, a town district, an industrial enterprise, or an educational institution. It is supposed to have 10 beds (for emergencies and for maternity cases), a small pharmacy, and a garden for medicinal plants. The station is staffed with assistant physicians (one or two), nurses (two or three), a midwife, and a practitioner of traditional medicine. (The nurses in health stations are part-time, working in the rice paddies at least half the time). Some health stations also have a physician. The financial support for health stations in rural communes comes largely from the local people, through cooperatives. In factories and on state farms, health stations are supervised and financed by the Ministry.

In addition to the Ministry of Health, the Red Cross Society trains volunteers in first aid. In the southern part of the country, there is a certain amount of private medical practice and other private market remnants of the previous regime prior to national reunification. The scope of the Ministry, however, is so extensive that it performs numerous functions which, in many other countries, are usually the responsibility of separate agencies.

Health manpower development

Health manpower planning

There does not seem to be any health manpower policy statement defining goals, priorities, main directions of action, but documents and, in particular, interviews with responsible officers, reveal certain rather clear policy lines.

Manpower development is clearly a top priority in the national health system of Viet Nam. The principal aims appear to be to improve the distribution of all health manpower and the quality of health personnel. It is also the aim of health manpower policy to make training programmes more relevant to current health needs, and to ensure that the living standards of health workers are close to those of the people they serve.

The number of health workers in Viet Nam is considered satisfactory for the present (42 per 10 000 inhabitants), and planning is directed towards improving their geographical distribution. For historical reasons, the southern provinces have much smaller numbers of health personnel than the norther ones. In the north there are, for example, often 20–30 doctors per district, while in the south there may be none in certain districts (nationally there are 6.7 doctors per district). Likewise, there are 2–3 assistant medical doctors per commune in the north, while many communes in the south have none (nationally 1.2 per commune). Planning calls for 1 assistant medical doctor in all commune health stations by 1985, and at least five physicians per district nationally by that date. All districts should also have three pharmicists by 1985 (one with university-level training while the others are assistants with 12 years of schooling plus 3 years' training).

Thus by 1985, but at the latest by 1990, accessible health care will be available throughout the whole of Viet Nam, as envisaged by the general health policy.

The other main aim of the health manpower development policy, as already mentioned, seems to be to raise the quality, i.e., to upgrade the standards of health personnel. This means that, in order to achieve the health policy objectives and among them primarily those listed in items (*b*) and (*e*) above, better qualified, i.e., more highly trained health workers, should replace the present ones. Thus, for example, the existing assistant medical doctors will be gradually replaced by "senior medical doctors", who will have had 12 years of schooling plus 4 years of training, instead of 3, as for the assistant doctors.

The duration of training of nurses will be increased from 2 years following 9 years of basic schooling to 3 years after 12 years of schooling. It is also intended that 85% of physicians (who qualify after 6 years of university medical school, following secondary schooling) will become "first-level" specialists through 4 years of additional training.

Policy statements emphasize that the developing countries cannot adopt the type of training used in the developed ones, especially the curricula used in training programmes and call for health instructors to shake off the yoke of the traditional dogmas. University education of health personnel should prepare them for district-level work, and should be based on needs. Another policy principle, as already mentioned, seems to be that the living standards of the health personnel should not be too different from those of the peasants. Quite clearly this aims at creating a real "fellowship" between health staff and peasants. This is also assured by the fact that commune-level health staff are not state employees but are paid by the communes from the taxes collected from commune members. The nurses in the brigades, who work under the supervision of the health station staff, are, like them, part-time health workers only, working as peasants on the rice paddies at least half the time and being paid for both duties equally.

All the manpower development policy priorities (more uniform distribution of health workers, improvement of standards of health personnel, more relevant training programmes, making health staff an integral part of the population they are to serve), are consistent with, and support, the general health policy objectives. The translation of all these policies into action should be facilitated by the fact that all training programmes, those of the universities included, are run by the Ministry of Health. The planning, training, and deployment of personnel, however, each come under different Ministry departments and are not formally linked. On an *ad hoc* basis, however, interdepartmental cooperation seems to be good.

Viet Nam has 5-year socioeconomic plans, including one for health, and 1-year plans derived from them. The latter, in turn, are based on the health policy, and the standards laid down take into account the available resources and the economic realities. For basic health services, they call for one rural health worker and one bed per 1000 population in the commune health station. At one health station visited, serving 6000 people, there were three assistant medical doctors, one nurse, one midwife, five aids producing medicinal plants and drugs, plus another nine part-time nurses (with 6–12 months training) in the work brigades. The station also had nine beds (six for illness and three for maternity cases). This unit seems typical for the north, and the aim is to achieve similar coverage in the south by 1990.

In 1945, Viet Nam had one physician per 180 000 population. Today the country has one doctor per 4000, and the aim is to have one doctor per 1000 people plus six other trained health workers by the year 2000. By 1985, the number of doctors was expected to be more than 19 500 (in 1981 there were 13 774), together with 500 upgraded assistant medical doctors (senior doctors), more than 6400 pharmacists (5000 in 1981), 5000 assistant pharmacists (4540 in 1981), and 30 000 assistant medical doctors (in 1981 there were already 29 460). For the assistant doctors, who are the mainstay of the commune health stations which, in their turn, are the real backbone of the system, the goal has apparently been almost reached, and only replacements will be trained. Precise planning figures are also available for different types of medical specialist. Planning figures for other health workers are fixed at the provincial level, and there are no national targets.

While quantitative manpower planning seems to be worked out in great detail, plans to upgrade the quality of personnel are less precise. They call essentially for more rigorous entrance requirements and additional years of professional training. Thus, the admission requirement with regard to general education has been gradually increased for practically all categories of health workers, even for aides, to 12 years (only exceptionally 9 years for certain minorities and geographically underprivileged areas), and most of the training programmes have been lengthened.

Thus the very clear quantitative policy objectives have been translated into equally clear quantitative plans, while in the qualitative field, the policy objectives are less clear and thus the plans in this field are also far from clear.

Since the educational system comes under the authority of the Ministry which prepared the plans, they will undoubtedly be implemented.

Health manpower training

The network of health professional schools in Viet Nam operates on the basis of the manpower plans. There are currently eight faculties of medicine and pharmacy, of which two also have sections for dentistry. It is planned to have one such faculty in each of the 10 health zones.

In each of the 40 provinces there are secondary medical schools, under the provincial health authorities, and six more directly under the Ministry of Health, making 46 in all. These, together with the planned increases, should certainly be adequate to fulfill the plans for 1990, as envisaged in the fourth 5-year Plan (1986–90). There should also be enough secondary school (12th year) graduates, especially women, for all the health schools. (There are already 10 applicants for each health-school place, and sometimes 20.)

As already mentioned, entrance to nearly all health schools now requires 12 years of basic schooling. In addition, there are entrance examinations in the basic sciences, personal health appraisals, political criteria and, for middle-level health schools, recommendations are required from the responsible commune, to which the graduate will return. Candidates are not seen by the school before admission.

At all levels the school programmes are still highly theoretical; most of the teaching is in the form of lectures (50–60% of the time at all levels, sometimes even more and only very rarely less). Follow-up studies have shown that graduates are weak at solving problems and practical work. On questioning, graduates said that they did not feel properly trained for their jobs. The declared intention, as noted above, to make curricula more relevant to health system needs, is encouraging, yet to put it into practice is not so easy. One discussion of the matter in a medical school seemed rather sterile. To be fruitful, curriculum changes must be oriented to explicit job descriptions of the work to be done, and these have not been drawn up. Committees advising the Ministry on curriculum planning lack any primary care practitioners and students, so that even there little change can be expected in the direction indicated by the policy declaration mentioned above.

Traditional types of programmes, still largely theory-oriented and without clear learning objectives, provide very little training in problem solving at community and district level, which should be their main aim. Methods are very much based on the passive participation of the learners. Even the so-called commune assistant medical doctors, who are trained specially to work in commune health stations, spend only 12–14% of their practical periods in those stations and the rest in hospitals. Similarly, physicians, supposedly trained for field work in the districts, spend only 12% of their practical periods in the field and the rest in the hospitals of the university city. Although all students attend lectures on management and teamwork, they have little opportunity to practise those skills under supervision during their training.

As a result of the economic difficulties of Viet Nam, there are critical shortages of textbooks, paper, and other supplies in all the schools. The limited equipment available is often out of order for lack of spare parts, or simply because of wear due to age and overutilization. However, quite clearly, the major problems have to do with the relevance of the curricula and these cannot be explained by such economy-related difficulties. Extensive use of bicycles fortunately enables most transport problems to be solved; similarly, very simple accommodation is provided for students, thus solving the problem of housing them.

The need for teachers who are familiar with educational principles and methods is recognized. In the Hanoi School of Public Health there is a section for "medical pedagogy", although its only full-time teacher has left. One-month teacher training courses will, however, continue to be offered by a staff obviously motivated by goodwill but with no formal training in this field. In two middle-level health schools visited, all teachers had received such training, and even in the Hanoi Medical Faculty 20% of staff had been so trained (but training at the Faculty was then completely stopped).

There are shortages of teachers in many technical fields, and especially in new disciplines, such as physiotherapy or paediatric dentistry. In the medical specialties, however, staff are available (in 30 fields for first-level specialists and even in 60–70 fields for second-level specialists). The same applies to the specialty training of pharmacists and assistant medical doctors. Yet, without clear job descriptions, the distinction between first- and second-level specialists is not clear, except for superspecialties.

Health manpower research is conducted on a small scale and under difficult conditions in the Hanoi School of Public Health. This research, however, is unable to provide the data needed as a basis for decision-making in the different areas of health manpower development, hence the often arbitrary character of the decisions taken.

When plans are explicit, health manpower training seems to follow them strictly. They are, however, exclusively quantitative. Lacking guidance on qualitative goals (job descriptions), the schools continue to follow traditional patterns, which do not prepare graduates for their future tasks.

Health manpower management

The pyramidal structure of services in the Viet Nam health system has been described. This system is based on the commune health stations and on the district health system, which provides the technical support to those health stations. The commune and district units serve the rural population, which accounts for 80% of the total. The great majority of health personnel must work in rural areas, even though many (especially those trained in cities) are unwilling to do so. The technological and hospital-oriented teaching in most schools does not help.

Health school graduates are distributed on the basis of requests from the provinces and districts. The "best" students can choose their places of work; the remainder go where they are sent, if possible to the places that they came from originally. After 5 years, men may move to a city, after 4 years, women—if they can find posts.

Continuing education is provided through district and provincial courses. These are planned by provincial health officers on the advice of specialists, but without national involvement. In one health station visited, staffed with three assistant medical doctors, one had taken a course in traditional medicine, the second in obstetrics and gynecology and family planning, and the third in otorhinolaryngology and ophthalmology; these courses lasted 3–6 months. This was the extent of continuing education in the 18-year careers of these assistant doctors. In general, however, there are monthly 1-day meetings in all health districts, where technical and other problems are discussed. In certain districts, there are other incentives to rural service, such as salary increases and earlier promotions (promotion is based everywhere on years of service and, in universities, also on the number of publications).

Some career mobility is found in Viet Nam, although the new 12-year schooling prerequisite for all health schools has reduced it. Currently 1–2% of assistant medical doctors go on to medical schools, as do 1–2% of nurses. Briefly trained nurses (1–2 years) may also become trained as assistant doctors. Policy now, however, emphasizes career advancement within categories, e.g., specialization for assistant doctors or teaching or administrative positions for nurses. Physicians, even in remote areas, may register with a medical faculty for a 4-year course to become first-level specialists. General or family practice, however, has not yet been designated as a specialty.

Commune posts regularly provide housing for new health workers, built sometimes by commune members. Commune health work seems to be well supervised by the district staff, and district-level work by the provincial staff. Regular field visits are made by hospital specialists and by staff from the hygiene and epidemiology sections. Hospital specialists tend to provide consultations on difficult cases (as a sort of continuing education), but without really monitoring the quality of local performance. Of course, the lack of detailed job profiles does not make this type of supervision any easier. Referrals of patients from commune to district level are relatively frequent (15–20% of cases). Few are sent, however, from the district to the provincial level.

Statistical information on health manpower seems to flow regularly in Viet Nam, including data on the quality of work (such as post-operative complications in hospitals). This information may even be used in curriculum planning.

Health system managers are trained regularly in the schools of public health in Hanoi and Ho Chi Minh City. Assistant medical doctors have been trained for district-level management in 3-year programmes, and there are also short courses. All courses are mainly lecture-based and participants are usually as passive as in other health personnel training courses. Plans call for ending the training of assistant doctors as managers, and instead training university graduates (physicians and pharmacists) for management responsibilities in 1-year postgraduate programmes (equivalent to first-level specialization).

The efficiency and effectiveness of the utilization of health personnel in Viet Nam is influenced by their planning and production, as well as by management policies. Commune personnel may not always be utilized effectively, and the norms may not ensure optimal utilization at other levels. The quantitative plans do not seem to have any objective basis and qualitative plans (job profiles) are lacking. The low salaries and weak financial incentives for high-quality work may cause defections from the health field in the future, and poor morale. The first signs of such adverse effects may already be appearing.

Conclusions

In spite of extreme difficulties, Viet Nam has achieved remarkable results in its health system. It has gradually built up a system based on the primary health care approach, as enunciated at the Alma-Ata Conference. It has achieved almost universal coverage in the north and expects to achieve the same in the south by 1990. The health status of the population has improved dramatically and further gains are expected. A general health policy to attain health for all has been worked out, and the health manpower policy is aimed at matching it. That policy, however, might be worked out in more detail and proclaimed by competent authorities as a foundation for the whole manpower development process. The Fourth 5-Year Plan (1986–90) may provide the opportunity for this.

To develop health manpower policy and its implications more fully, and to supervise its translation into action, as well as its implementation, a permanent health manpower development committee might be established, consisting of relevant Ministry of Health department heads together with representatives of other ministries; a Vice-Minister of Health might be the chairman. This committee should meet regularly and deal with all relevant questions in the health manpower field, basing its decisions as much as possible on pertinent research.

Health manpower-related research, necessary to provide an objective basis for decision-making in all areas—planning, training and utilization—might well be conducted, for example, in the schools of public health. The existing section in the Hanoi School of Public Health on "medical pedagogy" might be recast as the "health manpower development section" (*Section de Développement du Personnel de Santé*) and staffed by competent social research workers, could then serve as a focal point.

As noted above, the need for detailed job profiles, based on task analyses, is great and most urgent for health workers at commune and district levels. Such profiles would provide the foundation for planning, training, continuing education, supervision, performance assessment, and career decisions. Health manpower researchers could tackle this as their first priority. Sound job profiles or descriptions would give meaning to the "upgrading of standards" that national health policy calls for. Additional months or years of training do not necessarily lead to improved performance. "Qualifications" must be measured in terms of the ability to perform. The only criterion for "upgrading" would then be *improved job performance* in quantity and/or quality and not higher "qualifications", which may be totally irrelevant to job performance.

Admission criteria to various health schools may also need review. If job profiles are defined so that it is clear what is expected from graduates, criteria other than success at written theoretical examinations could perhaps be used, or used in addition to existing ones, since they are more relevant to the future performance expected from graduates.

Health manpower training

Training programmes should, of course, train health students for the jobs they are to perform. Those programmes must reflect the qualitative manpower plans, i.e., the job profiles, the tasks to be performed, and be based on them. The planning of such programmes would probably benefit from the participation of practitioners from the commune and district levels, as well as of students. Training programmes, in both their content and methods, would then be relevant to the qualitative health manpower plans and through them to the stated health manpower policy. If programmes are to prepare participants for problem-solving at commune or district level, then attending lectures in the capital or provincial city will indeed help very little. The same applies to programmes intended to prepare students for team-work. Active learning methods therefore seem to be in order—active student participation, simulation exercises, discussion groups, self-learning, supervised practice at the level of the expected future work-place, with lectures reduced to a minimum. Competence-based education, problem-based integration, multiprofessional (team) learning, and promotion of self-learning are the methods to be preferred. This, of course, means a profound revision of programmes and certainly not merely reallocating the amounts of time devoted to the various disciplines. It may be advisable to start such radical reforms initially in just a few possibly new schools where feasible, and/or in separate "tracks" in older schools.

In this spirit, the plan for the new senior medical doctors might be reviewed. If task analysis reveals tasks that assistant doctors cannot properly perform, then their training should be modified as necessary. (Why, incidentally, should commune assistant medical doctors require training for only 2 years, while district-level assistant doctors, working under supervision, are trained for 3 years?) On the other hand, if a new personnel category is needed at a higher level of qualification, it might be best to provide further training to existing assistant doctors; alternatively their basic training might be radically revised to fit the new job description. A medical specialty in general practice would also seem to be necessary.

The teacher's job, of course, is to help students to learn and for this purpose they themselves need to learn educational theory and practice. To train competent teachers, a national teacher training centre may be needed, with properly trained staff. At least the director and his/her deputy may have to be trained up to the masters's degree level in health personnel education in an appropriate centre (Bobigny, Paris; Regional Teacher Training Centre, Sydney, Australia, etc.). As teachers in at least 46 middle-level schools and some 10 faculties should all be trained and then retrained, the training centre may have to start to train personnel first for a few sub-centres (possibly one in each of the 10 health zones) so as to ensure the regular training and then continuing education of *all* teaching staff. Teaching performance should also count heavily in staff promotions.

Health manpower management

Supervision also needs to be strengthened, based on job profiles. Its content and frequency should be clearly stated for each type of health worker. Supervisors must also be trained in appropriate techniques. To encourage effective work, social and financial incentives are also necessary, as are clearly defined career structures. Job performance should be assessed in terms of qualitative and quantitative indices, and the data should be used for reviewing the planning, training, and utilization of health staff.

A national system for continuing education of all health workers, with a central institute as focal point and provincial subcentres as local executing agencies, should be organized. The system would obviously be closely linked to the career structure and would provide for regular and systematic continuous learning for each health worker in order to maintain and improve daily performance and through it the quality of health care. The content of the programmes should be based on the job profiles as well as on the results of the quality assurance statistics, and regularly aimed at closing the gaps disclosed by the latter.

Viet Nam has demonstrated how much can be achieved in health systems under the most difficult conditions, given firm political determination. There are lessons in this for all to learn. These will be all the more valuable if certain reforms are made to ensure the relevance of the health manpower development process to health development. Not all changes can be introduced at the same time, but priorities can and undoubtedly will be established by the health leaders in Viet Nam. The most urgent tasks seem to be to define manpower policy and to prepare job profiles.

Summary

1. The Socialist Republic of Viet Nam, under exceptionally difficult circumstances, has achieved historic results in building up its health services and improving the health of its population. It has achieved nearly 100% coverage with a health system based on the primary health care approach in the north, and the same is envisaged in the south by 1990 at the latest.

2. It has developed a health policy based on health for all through primary health care. Elements of an unstated health manpower policy can also be discerned, which would be in harmony with the general health policy. There now seems to be a need to work out the health manpower policy in detail and officially declare it to be the basis of all health manpower development activities.

3. A health manpower development system has been built up in which the three components (planning, production, management) tend to act as a cybernetic loop serving the construction of health systems under the unifying guidance of the Ministry of Health. However, a permanent mechanism seems to be needed that would systematically bring together all those concerned with health systems and manpower development in the Ministry, and possibly also outside it, for integrated decision-making based on research results.

4. Manpower plans are integral parts of national 5-year health plans, which are based on the stated health policy. Health manpower plans are exclusively of a quantitative character and as such closely reflect the policy principles. However, there seems to be a great need to prepare detailed job profiles for each category of health worker (qualitative plans) based on research (such as task analysis). These would then serve as a basis for "upgrading the standards" as well as for all other health manpower development activities.

5. A formidable training capacity has been built up which is still being developed but is already capable of producing health workers in the categories and numbers required by the plans. Training programmes, however, are far from being relevant to the ill-defined job requirements and to the health policy, and are usually of a markedly traditional character, as are the admission system and the training methods. There seems, therefore, to be a great need, after detailed job profiles have been drawn up, radically to review entrance requirements and training programmes and methods to make them relevant to those precisely defined job requirements, and through them to the health manpower policy.

Experiments with competence- and community-based, problem-oriented, multiprofessional and learner-centred training programmes could be started in new schools and programmes as well as in separate tracks in older schools. To achieve all this, teachers also need to be trained to understand their new role in this system as facilitators in the learning process.

6. The effectiveness and efficiency of health workers are enhanced by measures such as organized supervision, referral possibilities, continuing education, career mobility, and an information system. There seems to be a need to establish a national *system* of continuing education, supervision, career development, and social and financial incentives, and to introduce further indicators into the information system that will make it possible to assess the quality of health workers' performance and thus provide feedback so that all elements of the health manpower process (planning, production, management) can be adjusted.

7. WHO, if invited, could collaborate, within its budgetary limitations, in the planning and implementation of any of the activities listed.

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